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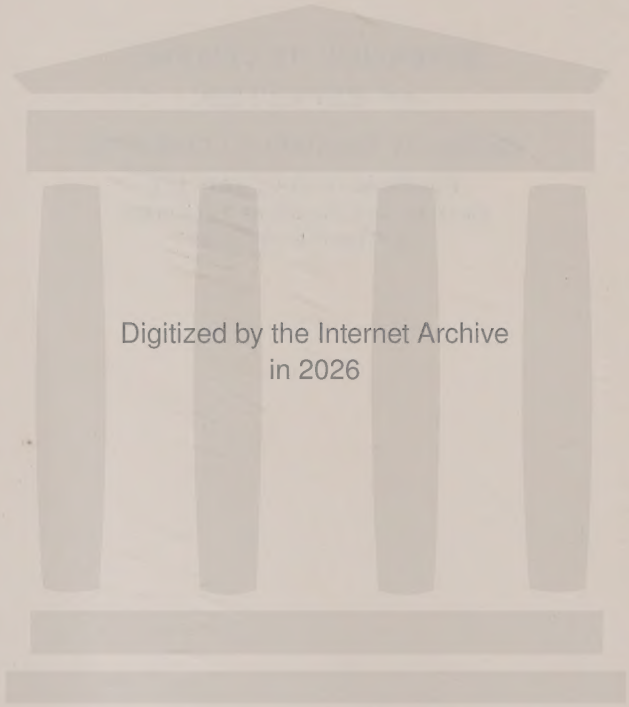
# RIVERSIDE TEXTBOOKS IN EDUCATION

EDITED BY ELLWOOD P. CUBBERLEY

PROFESSOR OF EDUCATION AND
DEAN OF THE SCHOOL OF EDUCATION
STANFORD UNIVERSITY



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# PROGRESSIVE METHODS OF TEACHING

BY

MARTIN J. STORMZAND

*Professor of Education, University of Southern California*

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# EDITOR'S INTRODUCTION

WHILE the progressive public school teacher of to-day is one who keeps in touch with important educational developments generally, and one who tries to bring her work into conformity with the larger administrative aims of the school system in which she teaches, the most important single measure of her progressiveness is, after all, whether or not she experiments with and uses various teaching methods with a view to the improvement of her classroom instruction. The ability to develop a flexible and an effective classroom technique will probably always remain the primary criterion for estimating a teacher's growth and professional progress.

A general development in the technique of classroom instruction is at present taking place, that is no less remarkable in character and significance for the future than the many other forward movements now under way in other phases of the educational service. While this development has been going on for more than a generation, the past decade has witnessed the most rapid changes in instructional methods in all our educational history. The teachings of psychology, sociology, supervision, and administration have been applied to teaching; the new testing and guidance movements have indicated new directions for effort; new civic and social relationships have called for new ways of handling the instructional problem; and the socialized recitation, supervised study, the problem and project methods, differentiated instruction, and experiments tending toward individual teaching have all alike tended to modify old practices and methods and to leave behind the teacher who does not continually strive to improve her classroom

technique by conscious experimentation with the methods that have been worked out and successfully applied. In such a changing situation the teacher in service, as well as the novice in the training school, must inform herself about the old and the new alike in the field of method and devices. The experienced teacher must decide, if she wishes to keep step with the progress of the schools, what of the old she must retain and what of the new she should try to understand and apply in her classroom work.

A revision and a rewriting of our educational literature, and particularly that relating to the aims and methods and tools of instruction, is rapidly taking place. Much that we have taken for granted in the past is being challenged. Methods of work that once were widely cherished are being discarded, and whatever is being retained is retained because it can demonstrate its worth in a new way. Both our point of view and our method of approach in dealing with educational problems have shifted from the philosophic to the scientific. Mere opinion no longer holds — not even the opinion of those who hold places of prominence. Opinion that is based on general experienced observation must give way, if challenged by results established by experimentation. Careful control of conditions, and accurate, objective, statistical data, compel even old prejudices and traditional convictions and practices to give way to new attitudes and methods. Problems that have not been solved by facts may still be held to have only a provisional solution.

Scientific method, accurate measurement, and controlled experimentation must come in the field of classroom methods, just as they have in the fields of school supervision and mental measurement. Experimenting with methods of teaching, new or old, does not simply mean "trying them out," and forming individual opinions as to their efficiency and usefulness. The experimental method is more than

mere trial and error, a fortifying of suspicion and prejudice; or mere trial and success, endorsing novelty and enthusiasm. Experimentation involves a careful analysis of the factors and conditions involved, an attempt to control such factors by measurement, and an accurate objective testing of the results. The final decision is based on carefully determined facts as to the success or failure of a method or plan of work, and the final opinion of the teacher is based on facts instead of on the authority of some training teacher, or on established habits or contagious enthusiasms.

That we are entering a period of extensive reorganization in the aim and content and purpose and method of classroom instruction, a period that will be dominated by new civic and social purposes and new scientific procedure, seems certain. That the result, as it relates to the work of the classroom teacher, will be a marked reorganization in methods of instruction and the substitution of new and more effective procedures for old and wasteful and ineffective ways of teaching, also seems assured. To set forth, for the information and guidance of teachers in training and in service, the best of the recent experimentation in the field of teaching technique, and to point out some of the more important directions in which we are now traveling, has been the purpose of the writer of this volume. His work represents a somewhat new approach to the problem of teaching method, and it also marks out lines that many others in the near future will follow. That it forms a very useful introductory treatment of teaching technique, for students in normal schools and colleges as well as for teachers in service, is the belief of both the author and the editor of the volume.

ELLWOOD P. CUBBERLEY

# PREFACE

The past decade and a half has witnessed remarkable advances in the field of the scientific measurement of pupil ability and teaching output, but the "personal equation" of the teacher herself we have not as yet learned how to measure. This personal element varies so much as to defy uniform procedure, and no standardization of a single method will ever give satisfactory results, except in very limited ways. Conclusions as to methods and plans of procedure that apply to the work of one teacher will fail to be binding for another. Only by careful experimentation for herself, and with a variety of methods, can any teacher reach conclusions that will be valid for herself alone.

Individual experimentation with a variety of teaching methods, old as well as new, is the large present-day problem of classroom teaching which teachers and supervisors of instruction alike face. Success or failure with any one method may lie in the method itself, or it may depend on the teacher; or one method may be more efficient with one type of subject-matter or one type of pupils, and another with other types of material or abilities. A teacher and a supervisor must alike recognize that one person may succeed with supervised study while another may fail. Again, the method may succeed well in history for that teacher, but not so well as some other general method in arithmetic. This problem, the problem of the progressive development of classroom teaching by conscious experimentation with a variety of teaching methods, is the problem of this book.

An effort has been made to give clear practical descriptions of all important general methods of instruction.

An attempt has been made to evaluate each, and to present its strength and its weaknesses. This evaluation is based on many years of contact with teachers in training in normal school and university, in the supervision of practice teaching, and in extensive observation of experienced classroom teachers. During the last three years the writer has spent on an average two days a week in the schoolrooms of Los Angeles, one of the progressive educational centers which has attracted experienced instructors from all parts of the country. Such contact has been the inspiration for the effort to keep the theoretical explanations as near to practical needs as possible.

In the writing of this book, the inductive development point of view has been abandoned. The Herbartian method, however, is given its place as one of a variety of general methods at the teacher's disposal. This method was the stream of rejuvenation that flowed into American teaching theory and practice a generation ago. Its values were so great, and its influence has been so widespread, that it has been difficult for many writers on method to coördinate it properly with later forces. The attempt to subordinate all other general methods as mere helping devices to the Herbartian plan has outlived its day of usefulness. However, no attempt has been made to make all methods center round or contribute to some novel scheme of teaching, such as the project method. An effort has rather been made to correlate the newer methods as parallel with the older methods that still have teaching values.

The point of view is also taken that the question of methods can best be discussed independently. Problems of administration, supervision, objectives, and curriculum-making have only rarely been introduced, and only when they seemed to be quite inseparable from the problem of technique. This is frankly and as fully as possible a Teacher's

Manual. More attention has been given problems of educational psychology, but this is necessary because of the large dependence of method on this related field.

The book is primarily intended as an introductory treatment of teaching technique for normal students in schools and colleges, but the teacher in service has also been kept in mind. One of the main purposes has been to put such teachers in an open-minded and experimental attitude toward the problem of method.

In so far as general method is equally adapted to elementary, junior high-school, and senior high-school teaching, explanation and illustration have been furnished that will make the material applicable to teachers in training or in service at any of the public school levels. While a constant effort has been made to illustrate the explanation of methods by reference to work in various subjects, an attempt has been made to keep the discussion from getting cluttered up with any discussion of devices, or by the introduction of model-lesson fragments.

No attempt has been made to present complete bibliographies for the various methods. A few selected references, the best and most accessible general discussions, with an occasional reference to some outstanding article in periodical literature, have been introduced in the footnotes, and in brief lists at the end of each chapter under the heading of Parallel Readings.

For use in the classroom, ASSIGNMENTS have been inserted, parenthetically, in various places within the text itself. Most of these have been cast in "problem" form, and are intended to stimulate supplementary thinking as often as supplementary discussion or reading.

At the end of each chapter there is given a test, utilizing the objective and economical devices discussed in Chapter XI. These are intended as models for the method there

discussed, as well as for actual testing on the subject-matter of the chapter. They thus serve to illustrate one of the most important methods a teacher must learn to use if she is planning such a series of experiments in method as are suggested in these pages for progressive improvement in teaching technique.

MARTIN J. STORMZAND

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# PROGRESSIVE METHODS OF TEACHING

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## CHAPTER I

### DANGERS AND VALUES OF TEXTBOOK TEACHING

Most teaching textbook-teaching.

1. Why textbooks are used — Compact arrangements of educational material — Usually contain teaching helps — Provide uniform education throughout the country.
2. Some disadvantages of textbook teaching — An individual viewpoint — Brief introductory surveys — Often accepted as final authorities.
   The recitation-testing period — The waste in recitation-testing — The inefficiency of recitation-testing.
3. How to use the textbook — Rapid first reading — A test for comparison of results — Using the Table of Contents — Teach the use of the Index — Used as a basis for class discussion — Certain objections to this method — Topical recitations on the text — Use as working manuals — Use as collateral to supplement class work — The second careful reading on assigned questions and problems — Reorganizing, or comparative reviews — Other helps furnished by some textbooks.
   Test and study-guide for the chapter — Parallel readings.

**Most teaching textbook-teaching.** Most teachers are textbook-teachers. This is the result of an American practice which has become a tradition, and in some States is even required by law, as, for example, in California, where all textbooks are chosen by a State board, and the teacher must declare under oath, at the end of the school term, that she has taught the State textbooks prescribed for her class.

Nearly all teachers begin their teaching by an almost exclusive use of the "textbook" method; some never advance beyond this primitive stage of their experience; most teach-

ers, even the best, adhere to the method for most of their work. However, one of the certain marks of successful, experienced teaching is seen in the substitution of other "methods" for this common, conventional textbook teaching.

That textbooks should have such a prominent place in our methods of instruction is easily explained, and is, to a very large degree, justifiable. The chief purpose of this book is to show teachers how they may gradually progress from this necessary form of inexperienced instruction to higher levels of professional efficiency by substituting, more and more, some of the other general methods of instruction that have been evolved. The purpose is not merely to give variety to instruction and learning, but to improve their effectiveness as well.

If the use of the textbook is so universal, and if its use is not only justifiable but even necessary, why should we make a change? Not because the textbook is used, but because it is used as it is — formally, thoughtlessly. The objection is not to textbooks as such, but to the method of use to which they are generally put, namely, recitation on the textbook for the purpose of testing the pupil's preparation on a formal, hurried assignment of a few pages. Textbooks may be used without wasting the whole "class period" with recitations intended to test pupils.

### *1. Why textbooks are used*

Textbooks will continue to be used in the public schools of America for generations to come. There is no device or method in sight to supplant them, with the possible exception of motion pictures for some phases of a few subjects; but textbooks will not continue to be used as they are now being used.

We may briefly enumerate and explain some of the reasons

for this important place the textbook has in American education.[1]

**They make inexperienced teaching possible.** Universal, free, compulsory education, and the relatively low pay of our teachers, make inexperienced teaching necessary in this country. Throughout our educational history the great majority of our teachers have been inexperienced. Inexperience does not merely mean that teachers have not had experience in teaching for a number of years; it means they have not had the necessary training to fit them to teach. Worse still, by inexperience we mean that the teachers do not know the subjects they are teaching well enough to present all the facts and rules the children must learn, or to organize them in a wise way so that the presentation will be logical or learnable or effective. At the present time, in the United States, speaking of the country as a whole, a large proportion of our rural teachers have not had better than a sixth-grade education, and many have never been to high school. Even in the towns and cities many of the elementary teachers have not graduated from a two-year normal school, and only a very small percentage have had a better education than this modicum.

For such teachers — the best some communities are able or willing to pay for — the textbook makes teaching possible. Why?

**Textbooks, compact arrangement of educational material.** A textbook may be defined as a logical or a pedagogical arrangement of some recognized unit of subject-matter for the school curriculum. A textbook is a condensed book, giving the fundamentals of some subject. Usually it is an introductory book, giving in brief form, and as a sort of introduction, a general survey of some subject. During past

[1] For a more extended discussion of some of the topics in this chapter, see Hall-Quest, *The Text Book*, especially chaps. I, and V to IX.

periods the knowledge that each new generation needed to know about the past social progress and methods of solving life problems has gradually been divided into "units" or subjects, such as arithmetic, geography, or history. Put another way, the materials necessary to perform some necessary particular phase of human activity, such as spelling or grammar, have been collected as a school "subject," or a recognized division of the educational courses of study. This has been true for elementary schools, high schools, colleges, and professional schools. In many cases the "subjects" were still too extensive to be studied in a single semester, or even a school year. Then the successive textbooks have been "graded" by dividing them into units of varying degrees of difficulty. Sometimes they have merely been divided into sections of so many pages to a grade.

Until rather recently, nearly all textbooks were made by men who were specialists in the subject on which they were writing. Such specialists, knowing little about elementary or high-school pupils, and greatly influenced by their special knowledge, strove to get out introductory books for use as school textbooks that should be not only compact or condensed, but complete as well. The natural thing to do in writing such a textbook was to arrange it logically, which meant to treat every topic as fully as its relative importance in the subject seemed to demand, and to treat it in that place where it naturally seemed to come in the subject.

Recently it has been discovered that logical treatment is not always the best arrangement for pedagogical purposes. Complete treatment often confronts the child with problems for which he has not the remotest need, and in which he has not the slightest interest. Logical arrangement often confronts him with abstract problems long before he is capable of understanding them. As an illustration of both, we may recall the old formal grammars. As an illustration of the

latter, we may think of the forbidding beginnings of the geographies of the last generation, with their astronomical first chapters. One of the most notable reforms in school work in recent years has been the change made in textbooks from logical to pedagogical arrangement, and the grading of material in relative difficulties to fit the abilities of the developing child.

Out of the foregoing discussion we may trace two further reasons why textbooks are used so widely in this country, and why their use is justified.

**Textbooks usually contain teaching helps.** It is not merely in the fact that the content of a textbook is a compact presentation of fundamentals that it is such a convenient device, especially for the inexperienced teacher. Some authors, and in recent years practically all writers of textbooks for the public schools, have consciously tried to introduce helps for the teaching of the subject. We may merely enumerate some of these:

a. Topic headings.
b. Helpful outlines, indexes, and tables of contents.
c. Questions for "recitation-testing" on each lesson or chapter.
d. Divisions into daily lessons.
e. Supplementary references for teachers or pupils.
f. Introductory explanations to teachers for use of the book.
g. Pictures, maps, and diagrams.
h. Illustrative exercises.
i. Appropriate problems to be solved.
j. All manner of typographical devices to arrest attention and indicate emphasis.
k. Occasional review exercises.
l. Directions to pupils.

ASSIGNMENT: [1] Expand this list as fully as you can by examining two or three elementary textbooks.

[1] Assignments of this nature, calling for applications of the principles discussed, are inserted at a number of places in the text. The instructor can use as many of these for individual or group work as seem advisable for the time available for the course.

**Textbooks provide uniform education throughout the country.** This has many desirable features. One of the phases of school work that has helped greatly in the advancement of public education is the widespread use of a common grading system, under which elementary and high-school work is divided into twelve years, either by the 8–4 plan, or by the newer 6–3–3 plan where junior high schools are maintained. In each of these years, especially the first eight, very much the same work is now done in each school year or half-year in most of our States. This has made it possible for superintendents, principals, teachers, and school boards to make comparisons of and improvements in their work, as a result of dividing and identifying commom problems in buildings, equipment, materials, and methods of teaching. It has had a reciprocal effect on the textbooks themselves, so that more and more they are being fitted to various recognized school grades. It has helped in problems of testing and promotion, as it has made easier the transferring of children from one school to another, or their moving from one place to another, and their proper placement in their new schools. This is an important element in a country with a population that moves about from State to State as much as does ours.

This uniformity has also made it possible for each of the States, all of which are independent in their control of education, to regulate, by legislation and administration, many important matters that have contributed to the advancement of education to its present high level.

ASSIGNMENT:

1. Find further advantages of uniformity in education in the United States.

2. Compare certain advantages in school systems like those of France and Germany which have a still greater degree of uniformity through central national control.

*2. Some disadvantages of textbook teaching*

**The argument not all on one side.** We should also note in this connection some of the disadvantages of this common use of textbooks in American education. America is quite unique in this method as compared with some of the other leading nations. The contrast has often been pointed out, in this respect, between American and German methods, because, before the World War, German education was commonly recognized as the most efficient in the world. The German schoolmaster was not inexperienced or poorly prepared, as so many American teachers were. In that country, where "authority" held such high place, the teacher did most of his school work by lecture, and by oral group drill. Many American educators have spoken of this contrast as an advantage for the American learner. A statement from Dr. Judd [1] on this matter may be taken as typical.

> The advantages of the European method are that the pupils become trained, attentive listeners, and are able in answering questions to talk coherently for long periods, imitating the continuous discourse of the teacher. The disadvantages are that the information supplied is limited by the individual teacher's training, and the pupils cultivate little or no independence in the collection and sifting of information. The influence of the teacher is always dominant — often oppressively so.

The contrasting results of the American method are stated by the same writer in a later paragraph:

> The social consequences of this emphasis on reading can be seen in the fact that public opinion in America is controlled largely by an appeal to the people through reading matter. The importance of this kind of public opinion can hardly be overemphasized. In a democracy there must be ability to form independent opinions, and this is possible only where there is the widest training in reading.

[1] Judd, Chas. H., *Introduction to the Scientific Study of Education*, pages 15–16.

It is, however, just in this connection that we may find some of the serious disadvantages of textbook teaching if it is not properly guarded against. These may be shown in brief series.

**The text presents an individual viewpoint.** The textbook usually presents some individual point of view as to values, emphasis, and logical arrangement. The multiplicity of textbooks in any one subject is not alone due to the fact that the knowledge in every school subject is constantly increasing and expanding, so that books need revision or fall out of use because they are out of date. Nor is the variety due to the fact that there are a number of big textbook companies competing for the valuable school market, each offering its text for every school subject. The multiplication of books is due rather to the individual viewpoint of authors and teachers as to the relative importance of the various topics in any subject, and the best method of presenting each. For example, there is hardly a single thoughtful teacher of English composition who has not yearned to get out his own textbook. So it has been, to a greater or less degree, in practically every school subject. Nearly every textbook writer, as a specialist in his subject, has had some hobby, or several, and so we cannot be sure that any textbook presents a well-balanced, unprejudiced survey of its field. The writer of an American history will have one sort of a story to tell of the Civil War if he is of the South, and a very different story if he is of the North. Mediæval and modern histories, written by a Catholic or a Protestant writer, present a strange contrast in their interpretation of great events involving the religious conflicts of these divisions of the Christian Church. There is not a school subject, hardly a topic even in the fundamental subjects, that does not take the color of its author's convictions.

**Brief introductory surveys.** Further, the textbook, even

at its best, is only a brief introductory survey. It covers so wide a field that it does not pretend to be intensive. Yet it is too often accepted by teachers, as well as pupils, as a complete, exhaustive treatment of its field. We seldom realize that the textbook writer is usually some second-rate authority, who is merely compiling for teaching convenience a bare outline of some phase of knowledge, its outstanding details gathered from whole libraries of research. A pupil is harmed who is left with the impression that, when he has completed his textbook, he has completed his study of that subject. The proper corrective for such a misunderstanding will be dealt with in some of the later chapters.

**Textbooks often accepted as final authorities.** Perhaps the greatest danger in the use of textbooks lies here. It ought not to be difficult to show that the textbook is just as unfavorable to the development of independent thought as is teaching by oral authority, as practiced in German and other Continental schools. The school environment, with its docile attitude on the part of the learner and encouraged by the teacher, is unfavorable for the development of independent thinking. Our schools have developed a gullible, credulous, slavish generation of readers. As evidence of this, the most fantastic, hurried, and inaccurate yarns of the newspaper reporter are taken for truth by the great majority of readers. They have not been taught to challenge what they read. Still more, they have, not intentionally, been so trained that any statement in print is immediately accepted without question. A printed page is a fetish for most of us; we reverence it as inspired; we can hardly disbelieve the most palpable contradictions even when they appear on the same page.

There are certain factors in the criticism and interpretation of a book, sometimes employed by thoughtful adult readers, that would not be out of place for the teacher of a

textbook to follow in her work. We sometimes, before beginning a new book, ask: "Who is the author?" "What authority has he to be writing on this subject?" "Why should I consider his point of view?" "Would his arguments or conclusions be worth anything?" or, "Is he prejudiced, or unbiassed?" Before we begin his book, we may study somewhat about the author. We let him also have his own say: We read his preface and introduction to see what he claims for his effort, what intention he has. Then we read reviews and criticisms to see what others, whose opinions we value, think of his work. We are sometimes moved to this after reading a book which has stirred us greatly.

It would, perhaps, be not unwise to advise that teachers should develop in pupils this challenging attitude in their approach to print, this reflective attitude after reading. How this critical feeling may be developed in its best form will be one of the methods illustrated in the following chapter on Collateral Reading.

**The recitation-testing peril.** The most serious disadvantage of all in the use of textbooks, amounting to a real danger, a shameful waste, an almost criminal inefficiency, lies in the formal, mechanical use of a textbook as furnishing material for a daily grind of recitation-testing. Most children do not know how to study most textbooks, unless they are definitely and daily directed as to just what to do. One reason why such subjects as arithmetic in the elementary school, or Latin in the high school, are so often favorite studies with willing pupils is because the task presents a well-known — one might say almost instinctive — method of attack in carrying out an assignment. Subjects such as history or geography may be contrasted in this respect.

The difficulty here lies not in the tastes or attitudes of the pupils, but in the indefiniteness of the teacher. The very tradition of the centuries-old method in Latin and mathe-

matics, in using the class period for testing pupils on their preparation, has, no doubt, influenced our use of the same method in all subjects. In later chapters, on Supervised Study and on Testing, it will be shown that perhaps even in the Latin and the mathematics this traditional method of recitation-testing may be far less efficient than some of the more recent methods that have been evolved by thoughtful leaders.

We may, at the start, then, raise the question whether it is fair or wise to use a textbook unnaturally; that is, very differently from the way in which we would use any other book. True, it is more compact and condensed, but is this sufficient excuse for gnawing through it at the rate of a few paragraphs, or at most a few pages, a day, as is often done even in high school or college? Put another way, if it may be justified in some manuals, such as an arithmetic or algebra, which present a host of problems to solve, does this justify the same method in geography, history, reading, and literature? Why do we pursue this laborious pace? Either because every detail must be mastered, or because only such a minute quantity can be satisfactorily tested in the usual recitation period. Later we shall have occasion to examine the evidence as to whether the former alternative is really true. Here we may take up the question as to whether the type of recitation justifies our limitation of the quantity of work done by the pupil in his study periods.

**The waste in recitation-testing.** We ought to stop calling those periods when the teacher meets her pupils "recitations." The word implies that the period is to be used for testing, for having the pupils give back what they have learned. It has already been suggested that such recitation-testing, which now constitutes the bulk of the school day, is highly wasteful. Let us see why.

It is wasteful of the child's time and interest in class. Dr.

Franzen has pointed out [1] that in dealing with a group a teacher must address herself to either the upper or bright quarter, to the average half, or to the lower or duller quarter, and that when she directs her attention to the middle or average group she bores the upper quarter and mystifies the lower quarter, while, if she deals with the upper or lower quarter, she either mystifies or bores the other three quarters. This is a serious difficulty arising from the more or less necessary grading and classification of children in groups for the sake of economy. If the grouping of children of unequal abilities is unavoidable, then the wasteful results suggested may either be intensified by thoughtless method, or be partly overcome by more efficient selection of work in the class period. The ideal toward which the teacher should strive is surely the best and utmost utilization of each pupil's time.

In no exercise is this inequality and its subsequent waste so accentuated as in the use of a class period for oral recitation-testing. The teacher usually has two unfortunate alternatives in the dilemma following almost every testing question. Either (1) the answer is promptly disposed of by a ready response from some "hand-waver" in the upper quarter, in which case the majority are lost in mystification; or (2) a persistent, tireless effort is made to drag a response from some unprepared or incapable one in the lower quarter, to the boredom of nearly all the rest. Our present traditional ideal prefers the latter alternative as the more conscientious procedure. The result has been the wasting of genius, the destruction of natural interests in the superior group, and the development of a habit of loafing, such pupils naturally developing confidence that "bluffing" or the response on the spur of the moment will be quite sufficient to keep them abreast of the "recitation-testing" emergencies that may come their way.

[1] *Teachers College Record*, November, 1920, page 438.

**The inefficiency of recitation-testing.** But still further objection on the score of inefficiency in such testing may be found. Let us suppose for the moment that the above situation is grossly exaggerated, and that there are no extremes of brightness and dullness in the average class. Or let us suppose a class that has been wisely classified into a fairly homogeneous group. The use of the class period for oral testing would still be inefficient and wasteful. A class of thirty would be a small class, as averages go at present. How brief would a lesson have to be to get an effective oral test on the whole, or even on most of it, from every child? Of course, "that isn't done," because all but the first few called upon to recite could learn their lesson during the recitation period. Only about once in two weeks would each child be caught by chance among the early victims! To avoid this kind of waste we resort to the theory of sampling. Every child is called on for his tiny bit of the whole. Again the child is fairly safe on the law of chance with only a partial preparation, on a shrewd guess at the teacher's system in calling for recitations, or by conspicuous volunteering at the auspicious moment.

Why test in such a wasteful, time-consuming, inefficient way, when every pupil can be called to account for practically the whole of an assignment in a few minutes at the beginning of the period? This can be done by the methods to be outlined in detail in the chapter (XI) on Tests and Examinations, and the rest of the class period can then be given over to a variety of supplementary instruction, or the introduction of additional fresh material that will hold the attention of all. Testing of such a type will be shown to be an effective motivation for every pupil's preparation of the whole textbook assignment, and the class period may then be utilized in expanding, reinforcing, and applying the textbook material by several of the other methods taken up in succeeding chapters.

We have, so far, tried to impress the idea that there is a way *not* to use the textbook, the way in which it is now most commonly used. In the next section we must take up the positive, constructive side, How to use a textbook.

### *3. How to use the textbook*

**Rapid first reading.** Use it naturally, as you would use any other book. This would mean a rapid first reading or even skimming for a bird's-eye view or pre-survey of the field of the book as a whole, or of large natural units of the book. Probably the latter will be the better plan in using any elementary school text. We must note a few natural exceptions, of course, such as the working manual in arithmetic, or a foreign-language reader. This extreme suggestion, which will almost strike some as heresy, is intended as an antidote to the conventional nibbling and gnawing at a few paragraphs or pages a day, in mechanical succession — a tradition which has been built up to keep the class within the "semester bounds" and at the rate of the average or slowest, or to take only so much as can be conveniently handled in the oral testing of the "recitation" period.

One of the most important phases of book study is the getting of a proper perspective at the very beginning — an idea of the outstanding points, the main divisions and their relationships, and the relative place of various items in a related series. The customary assignment of a few pages a day in the textbook prevents this gaining of a proper perspective of the parts as related to the whole. This lack may be made up in reviews, after a chapter or an extended section has been completed, but it will be far more helpful to get such a bird's-eye view of the material at the beginning. The natural chapter divisions in history and geography, in reading work and in English literature in the upper grades

and high school, and in all science work, should thus be respected in the first reading of new material.

ASSIGNMENT: Make a lesson-plan or study-guide for one or two chapters, in a particular textbook for an elementary or high-school class, that will apply the suggestions made in this section.

**A test for comparison of results.** How much pupils can get out of such a preliminary skimming or first natural reading will surprise most teachers if they have never tried it. An experiment that ought to be convincing may be suggested. Let us suppose a class about to begin the study of a chapter that contains enough material for five or more average lessons of the common type. After the teacher has studied Chapter XI of this book, dealing with Tests and Examinations, let her prepare a test, using the various devices shown there, on the experimental material, and a parallel test with practically the same types of testing for the next chapter. Now proceed to the teaching of the first chapter in the old-fashioned piecemeal way and give the test, before reviews, as soon as the work is completed. For the second chapter let the pupils have the first class period for reading, and at the close tell them to complete the reading of the rest of the chapter by the next day. Give the test on this chapter at the beginning of the next period, and compare the class averages on the two tests. It will also probably be profitable to compare the individual scores made on the two tests.

Unless the teacher has been unfair to the experiment by unduly stressing in the recitation periods the questions she has made out for the first chapter, there will probably be a revelation as to how much children get in a single reading, and how little more they get by supposedly intensive preparation and recitation on a few pages a day. The teacher need not feel unduly alarmed if the average on the "super-

ficial reading" method is even higher than the average for the "intensive study." This will especially be a likely result if each test includes a question or two related to the "enumeration" of principal divisions or outstanding organization.

**Using the Table of Contents.** Teach pupils how to use the "Table of Contents" of any textbook that is provided with a proper one. This is true of very many of the newer textbooks. The ability to judge the value and scope of a book, in adult life, is one of the most valuable bits of technique that the schools can teach, and one that is not commonly taught. Extensive experience and tests of college students along this line have revealed little evidence of this ability. If an author has done a conscientious piece of work on his "Table of Contents," if, in other words, the book is well organized, the use of this outline and constant reference to it by the pupils in their first reading, and in their reviews of extended sections, will yield two valuable results.

Such constant reference from the text to the author's outline will furnish a condensed scheme of associations that will help the pupil to classify and retain, in organized form, much of the material he has studied.

Work once gone over in this way can be reviewed economically by the pupil. Reviews made with reference to a "Table of Contents," which has been made a center of associations, can be made without a complete re-reading of all the text. Similar help will be obtained if the topics of the "Table of Contents" are introduced as black-faced topics in connection with their appropriate paragraphs in the text. The technique of these processes should be consciously taught, and the pupils should be made to understand the value of such procedure in their study.

This technique may even be elaborated, if desired, by showing the pupils the value of underscoring key sentences, or important individual items in a paragraph; or the pupils

may be taught to insert their own topics on the margins, if these are not given in the text. Both these suggestions, of course, assume that the textbook is the pupil's own property.

**Teach the use of the Index.** Teach the pupils how to use the alphabetical Index of a book. The values and purposes in the use of the alphabetical Index, at the end of a book, are very different from those of the "Table of Contents," usually placed at the beginning. The Index serves two distinct purposes: (1) As an aid to find quickly *particular* items; (2) As a help in bringing together all references in a book to any topic. The alphabetical arrangement is an aid to facilitate both purposes of reference.

The use of the Index for the former of these purposes may be taught by occasional exercises, either when an emergency in the class demands it, or by set exercises given the children now and then. This is merely intended to demonstrate to them the economy of time in finding particular items of information. To make the habit useful, as a permanent one, the pupils should be given some practice in finding items in those sections of the book which they have not yet studied. Otherwise, the natural thing to do is to turn to the approximate place and run it down by glancing at the context. It is just this wasteful method of search that the Index intends to make unnecessary, a fact which many of us have not learned to take advantage of, if we have had any previous acquaintance with a book. For this type of particular reference pupils should learn that the Index should be a *first* resort, and not a *last* resort.

The second purpose of the Index may be put to a further use, especially as a basis for certain types of review work. This will usually provide a helpful reorganization of materials. An illustration from American history will perhaps serve best to show the possibilities. In working through the

history the pupils will come upon a great deal of detached information about such general topics as "slavery," or the "tariff." These will be scattered along the story, in chronological order, usually being placed by epochs or administrations. Helpful unifying reviews on these and similar important problems may be made by using the various references under them in the Index, and by following the page references in order throughout the book.

**Using the text as a basis for class discussion.** Explain, interpret, and discuss the textbook in the class period. This method of using the textbook is quite like the conventional recitation, as far as conducting the period is concerned, except for the fact that textbooks are open. The activity is intended as directed, coöperative study — not as testing. The teacher takes a prominent part, pointing out main divisions and important points, asking questions, giving incidentally considerable supplementary information, or restating and clarifying the statements of the textbook. The pupils follow in their texts by reading silently sentences or paragraphs as directed from time to time, answering questions to show their understanding, and raising questions when they do not understand.

If choice had to be made between this method of using the textbook, and the assignment of outside work to be followed by the "recitation-test," this method would be preferable as far as learning results are concerned. The same simple experiment suggested above, could be tried out by any teacher who is skeptical on this point. The use of this method does not, necessarily, preclude the assignment of work for study-hour or home-study. The assignment can be devoted to collateral reading.

**Certain objections to this method.** One objection may, however, be valid. This method is not productive of self-reliance in the pupil's study. The exclusive use of this plan

of using the textbook would certainly be inadvisable. If the outside assignments, though, are such that a pupil will be held to rigid account, by tests and reports, the proper experiences in self-directed study will be secured and much more ground may be covered. This class-period explanation-and-study method may also be intentionally adapted to the pupil's consciously acquiring important elements in study technique. Larger emphasis may be put on the silent-reading of paragraphs for definite answers to questions given out.

Aside from this conscious emphasis on proper study technique, the teacher will also have to prepare carefully and conscientiously for the class period. The successive steps of the lesson, the questions to be asked, and the supplementary information to be given must all be carefully thought out and planned in advance. Unless the teacher has had a wide experience and is thoroughly familiar with the field, and unless she is very familiar with the textbook, careful preparation alone will save the class exercise from becoming a halting, formal affair, with little interest and no satisfactory progress in it. Individual pupils' reports on supplementary topics may sometimes be introduced in their proper setting in such an interpretation and study period, although most collateral work in the public schools can best be done after the pupil has first studied the textbook synopsis. In some subjects suitable collateral topics are sufficiently detached not to require this background.

**Having topical recitations on the textbook.** This was one of the earliest innovations in, and protests against, the old question-and-answer testing-type of recitation. Advocates of the topical recitation called attention to the waste of the old method, especially the evil of "yes" and "no" questions, the fragmentary-sentence habit, the lack of practice in organized response, and the stranding of many a class period in the shoals and shallows of the unprepared and incapable.

The evident sections of the assignment are, in this method, designated as topics for extended, independent recitations. The pupil is given a more definite and concrete ideal to work for, and he is given, in the class period, a valuable series of experiences in social expression, especially if he has to come before the class to tell about his topic. The method motivates a more thorough preparation, and, if the teacher gives the proper suggestions, teaches the advantages of simple outlines as an aid to clearness and completeness.

The disadvantage in using the textbook for such purposes lies in the fact that all of the audience is as fully informed as the speaker. This destroys some degree of possible interest in the recitations, although attention can be held by having each topical recitation followed by a few supplementary statements from volunteers as to omissions and inaccuracies that were made. There may be some objection to this on the score that criticisms of this type may tend to inhibit the freedom of such recitations as expressional exercises, but a spirit may be developed in the class which will meet this difficulty for all except those who are consistently poor in their preparation or of very limited ability. The disadvantage to these few must be weighed against the general advantages of this method over the question-and-answer testing period.

**Using certain textbooks as working manuals.** It must have been evident to the reader that textbooks were principally thought of here in connection with content or informational subjects. The textbook in certain subjects is of an entirely different type; it is intended as a working manual. This is true almost wholly of arithmetics, and of all mathematics textbooks in high-school courses. It is true of large parts of the spellers and language books in the grades, and commonly of the composition and rhetoric texts in the high school.

But even in connection with such subjects the recitation-testing evil has come in. This may be strikingly illustrated in the case of the composition manuals and rhetorics, as often used in English classes. These textbooks were intended as working manuals and reference books, although many of them devote disproportionate amounts to the explanatory material. It is not an uncommon thing to find teachers using such books as material to be learned and recited on, instead of showing pupils how to use them for reference in applying the principles of rhetoric to their composition work. This is partly the fault of the textbook itself, and several recent composition books[1] have avoided this evil by largely omitting the theoretical discussions.

**Using the textbook as collateral study to supplement class work.** This method must not be confused with the use of several textbooks for collateral reading to the prescribed textbook used by the class. This latter method will be discussed fully in the next chapter.

The method here advocated is adapted to the use of older students only, beginning in the high school, or possibly in such a subject as history in the upper grades. The student is left entirely alone in his responsibility for the use of the textbook. Tests on considerable sections, several chapters, are given once every week or two. The study of this core of material is then taken for granted as a background for the class-period activities, which are filled as full as possible with supplementary experiences. This has been found an effective method in college work, where the class period is then commonly taken up with lectures on new material, or with reports on individual collateral reading by the students. Leaving the student alone with the textbook, with a gener-

[1] Hitchcock, *Practice Manual;* Oldham, *A Laboratory Manual of English Composition;* and Miller, *Practical English Composition,* are good examples of this type of working manual.

ous time-allowance for preparation, and with the prospect of a strict accounting to be made in the periodical written quizzes or tests, makes it possible to cover twice as much material as could be covered if each class period were used for oral testing. Little class time need be taken for the written tests if the methods outlined in Chapter XI are followed.

This use of the textbook will not be beyond the ability and responsibility of any high-school pupil, if specific study-guides are made out. A half dozen questions and directions will usually be sufficient for a chapter of fifteen to twenty pages. Tell the pupils definitely and frankly what you want them to get, and how thoroughly they must master some points. Considerable time can be saved if such study-guides can be mimeographed and distributed; the next best alternative is writing them on the blackboard to be copied into notebooks. If mimeographing cannot be had, some care with one set of loose-leaf notebooks, to be handed in one semester, may supply material to be handed out to the next class, if the same textbook is used.

It is even possible, by this method, with some adjustment in the study-guides and test questions, to have different pupils of a class use different parallel textbooks.

**A second careful reading on assigned questions and problems.** This is a natural complement to the first-reading or skimming method, described on page 14. This first reading was for the purpose of getting a proper perspective, and for the discovery of main points, important passages, items of special interest, and the noting of difficult sections. Similar analysis of the assignment should previously have been made by the teacher, partly from the pupils' point of view as far as she can put herself in their place, and partly from the point of view of her greater experience and maturity in evaluating the relative importance of the various elements. This

must now be presented to the pupils in the form of a study-guide of questions, problems, and suggestions, similar to that outlined in the preceding section.[1]

**Reorganizing or comparative reviews.** These may be given at times in relation to parallel textbooks or other material used in collateral reading. This is merely mentioned here in order to make a complete survey of the variety of methods that can be used in connection with textbook work. The full elaboration of the method may be left for discussion in Chapter VIII, dealing with Reviews.

Here it may be necessary to point out that when a textbook has once been covered along lines of its own organization, certain related sections that have been separated by that organization may be brought together under some different unifying principle of their own. In connection with the use of the Index an illustration has already been given from the field of American history, where it was found that the chronological organization common in history texts scatters material on certain persistent problems, such as "Slavery" or the "Tariff." Similarly, in geography, we usually find the common distributions to be organized by continents and countries. A reorganizing review of products, or industries, or physiographical comparisons will provide lines for reorganizing reviews. In the present-day language textbook logical organization is giving way to graded exercises, usually proceeding in a sort of cyclical repetition. When large sections of such textbooks have been completed, especially in the upper grades or the junior high school, valuable reviews may be planned to bring certain related materials together, as the scattered elements about the sentence, or the different parts of speech.

**Other helps furnished by some textbooks.** Textbook-

[1] The "Test and Study-Guide" at the close of each chapter in this book also illustrates the method.

making is constantly improving its technique. Many recent textbooks in the content subjects are now furnishing a variety of helps which have been worked out independently by progressive teachers. Too often the values to be found in a use of these are disregarded. Some books give helpful lists of references to collateral reading that have gradually been accumulated, and to some extent graded and made public by a number of independent workers. Such lists of references are usually the best a teacher can find. Other textbooks give helpful suggestions as to how and where other illustrative material, such as pictures, exhibits, etc., may be secured. Others give stimulating questions and problems that may often be used as study-guides. Some, notably recent language books, give a great variety of suggestions in the way of exercises and devices. It is getting to be such a common thing now for authors and publishers to get out *Teachers' Manuals*, with a combination of all such helps, that a teacher should make definite inquiry, if she does not know, whether such a Manual may be obtained for any new book taken up in her classes.

ASSIGNMENT: Make a list of five prominent textbooks in reading, arithmetic, history, geography, or some other subject designated by your instructor; find out whether a *Teachers' Manual* is published for it, and list the exact titles of the Manuals.

## TEST AND STUDY-GUIDE FOR CHAPTER

The different types of tests given here, and at the close of succeeding chapters, such as "enumeration," "completion," "right and wrong," etc., are introduced for purposes of illustration, and by way of enabling the student or reader to check up the grasp of the contents of the chapter just completed. For an explanation of these, see Chapter XI.

## I. ENUMERATION

(3 points each=75)

1. Give four reasons why the textbook has had such an important place in American education.

1.

2.

3.

4.

2. Name ten teaching helps commonly found in public school textbooks.

1. 6.

2. 7.

3. 8.

4. 9.

5. 10.

3. Name three disadvantages of textbook teaching.

1.

2.

3.

4. Give eight constructive suggestions as to how a teacher may use a textbook.

1.

2.

3.

4.

5.

6.

7.

8.

## II. COMPLETION

(1 point each=15)

Complete the following sentences:

A textbook may be defined as a.....or a.....arrangement of some recognized unit of.....for the school.....

In Europe the.....method is more commonly used than the textbook method. The American method of instruction develops greater ....., according to Judd.

The textbook writer is usually a.....authority in his subject.

The greatest evil connected with textbook teaching is that the class-period is used for..... This method is not even.....for the purpose intended.

One of the most important phases of book study is the getting of a proper .....at the beginning.

Pupils should be taught that the index should be a.....resort to find.....items. The.....arrangement of an index is an aid to facilitate reference.

The discussion method is not productive of.....in the pupil's study, but is helpful in teaching him various.....of study.

## III. RIGHT AND WRONG

(1 point each=10)

Be able to indicate which of the following statements are right and which are wrong.

1. Logical treatment is not always the best arrangement for pedagogical purposes.
2. Textbooks have tended to make public school education less uniform in the United States.
3. Textbooks should be thought of as complete, exhaustive treatments of a subject.
4. The recitation period should be used largely for the purpose of testing a pupil's preparation.
5. Textbooks should not be accepted as infallible guides.
6. Oral recitation-testing is wasteful of the child's time and interest.
7. Oral testing is inefficient.
8. An index and a table of contents of a book are largely intended to serve the same purpose.
9. A discussion lesson requires more preparation on the teacher's part than a recitation lesson.
10. Topical recitations are better adapted to textbook material than to collateral reading.

## PARALLEL READINGS

Bagley, W. C. *The Educative Process*, chapter XXII.
Betts, G. H. *Classroom Method and Management.* Chapter IX on the Recitation.
Colvin, S. S. *An Introduction to High School Teaching.* Chapter XI, especially pages 233–43, and chapter XV.
Earhart, Lida B. *Types of Teaching*, chapter IX.
Foster, H. H. *Principles of Teaching in Secondary Education*, chapters IV–VI.
Hall-Quest, A. L. *The Textbook*, especially chapters I and V–VIII.
Johnson, Henry. *Teaching of History*, chapters XI and XII.
Parker, S. C. *Methods of Teaching in High Schools*, pages 418–25.
Strayer, G. D. *Brief Course in the Teaching Process.* Chapter X on the Recitation, and chapter XI on Questioning.

# CHAPTER II

## USING COLLATERAL MATERIALS

Importance of reading for adults — What constitutes training in reading — Supplementary *vs.* collateral reading.

1. Various kinds of collateral reading — Parallel textbooks — General works of reference — More detailed accounts of special topics — Parallel points of view — Reading of sources on which textbooks are based — Reading current literature to bring material up to date — Reading to give spirit and atmosphere — Reading for present-day comparison and applications.
2. The purposes of collateral reading — To enrich minimal requirements of textbook — To expose interests to a broad contagion — The bibliographical purpose — Training in bibliographical procedure — Organization of material gathered from various sources — Wrong extremes — To develop a critical attitude — The lost opportunity of the newspaper — Training in historical criticism — The purpose in mind — Acquaintance with types and values in current literature.
3. Assignments of collateral reading — Method of assignment — Length of assignments.
4. Methods for accounting on collateral reading — Oral report to class — Handing in outlines or notebooks — Honor slips — Oral or written class tests, or quizzes — Individual reports, or quizzes.
5. Other phases of collateral-reading work — Textbook *vs.* collateral reading — The teacher and curriculum making — Collateral reading for the superior child — The teacher's collateral reading — The teacher's personal collection — The school library — Use of the public library.

Test and study-guide for chapter — Parallel readings.

**Importance of reading for adults.** One of the most important *attitudes* we must instill in our pupils is the determination to derive all the possible improvement and enjoyment, in every phase of life, that can be secured by constant, varied, purposeful reading.

One of the most important *habits* we must build up in our pupils is the habit of extensive, rapid, useful reading.

One of the most valuable *skills* the schools can and should

give children is skill in finding readily all accessible material in books and magazines, on any desired topic, or on any subject of value or of interest. We must prepare every school child for the adult day of independent literary research or recreation, and we have left undone our most important duty as educators if any child leaves school unable to use books and libraries.

This involves summarizing the importance of reading for the average adult. In studies of school objectives as related to preparation for life [1] we find reading as having very great significance from the possible vocational, civic, and recreational uses to which it may be put.

Suppose we assume that a man earns his living by an occupation in which reading is unnecessary. If he has not learned to read and has not learned how to read, he has been trained merely to exist. He is unfit to function in vital social relationships, and unequipped to enjoy one of the most valuable means of leisure recreation. With the development of plays and games and the extension of the moving picture, we may even waive the third of these great values of reading, the recreational, as we have waived the vocational for some. But we cannot ignore the social; let the civic phase alone be used to illustrate our argument.

Questions of political importance in a democracy have to be settled by majorities. They will be settled by ignorance, by misinformation, or by wise decisions based on information. Such information on most problems is avaliable in books, magazines, and newspapers. Much misinformation is also available in the same sources. Only the extensive, comparative, critical reader can worthily prepare himself for his civic obligations. The generous public support of education can only be defended on the assumption that the

[1] Compare, for example, many passages in Bobbitt, *The Curriculum.*

chief function of the public school is the training of efficient citizenship. This aim transcends the vocational, and really must dominate it, for the public welfare of the group transcends the welfare of the individual.

**What constitutes training in reading.** It has been intimated that proper training in reading involves an attack on attitudes — an implanting of interests and tastes; that it involves the development of a habit of constant and varied reading; and that it involves training in the technique of efficient information-finding and information-getting and assimilating.

Each of these must be largely developed by extensive experiences of a similar sort during the school years. Attitudes have to be developed or encouraged, proper reading activities repeated until they become automatic, a technique of research must be developed to the state of effective independence.

This cannot be developed by the frugal, laborious use of a few books, no matter how compact or fundamental they may be. The study of textbooks alone cannot serve this purpose. The study of textbooks in almost every subject must be accompanied by the liberal use of supplementary or collateral reading. As a school exercise, this collateral reading must always be consciously directed toward the development of attitudes, habits, and technique.

**Supplementary *vs.* collateral reading.** The term "supplementary" reading is used in various connections and with different meanings in the several phases of school work. The elementary teacher of reading often uses the term "supplementary readers" for books used by pupils outside of the common reader used by the class. These are other books of the same sort, used for the same purpose, to give additional reading opportunities and experiences, but the content of a class reader and of a supplementary reader may have noth-

ing in common except an approximately equal grade of difficulty.

A high-school English teacher commonly uses the term "supplementary reading" for that group of classics read in connection with literature classes that are not intensively studied together in class. The term is then commonly used as an alternative for "outside reading" or "home reading." Again there is no necessary relation between such reading and a classic that may furnish the intensive work for the common class exercise. Such supplementary reading is now usually selected from rather extensive lists to meet the individual interests of members of the class, and reports or tests on the reading are usually individual affairs.

A third sense of "supplementary reading" is implied in its more common synonym, "collateral reading," which is the type of reading specially intended in this chapter, and for which the latter term will be exclusively used in the further discussion of this method. "Collateral reading" is intended as extending or developing the pupil's information about selected topics dealt with in the meager compendium of the textbook. The most familiar type, and perhaps the original form of it, may be seen in the history classes. Further, detailed information, and a different, possibly a conflicting, point of view is desired for some topics; possibly events perforce omitted in the condensed textbook outline must be supplied; or original sources and documents must be consulted to clothe the skeleton, or to give an atmosphere of reality. This method of comparing parallel accounts, or providing additional information in the interests of completeness, clearness, and reality, has been adopted from the history teacher's technique with effective results in other "content" subjects of school work, such as geography, literature, and the various sciences.

*1. Various kinds of collateral reading*

It may be helpful to identify some of the various kinds of collateral reading that may be done, for from them we may develop the idea that such reading may be done with various purposes, and that an accounting for such reading may be made by the pupil in various ways.

**Parallel textbooks.** One of the common forms of collateral reading is the use of parallel textbooks. This is largely in the interests of clearness, or of completeness on a limited scale. Different authors have varying success in their appeal to the child's interests on different topics. The style of one may appeal to one child; another may make his meaning clearer to others. Helpful maps and illustrations may be found in one text that are not found in another. One author's outlines may be superior; another may excel in helpful questions or problems; limited extensions of material on certain topics may be useful in other texts. Possible contradictions, or conflicting points of view, may serve to set before the pupil material for reflection and solution.

The parallel textbooks present the easiest and most natural beginnings for a school library. The teacher's own proper preparation often implies her possession of such material. It has the advantage, usually, of being graded to the same level of ability as that required for the class textbook, and herein lies one of the difficulties that has to be met by the teacher in selecting collateral reading from other sources. Frequently this is too mature for the pupil's use. The recent remarkable development of children's encyclopedias is a good illustration of the difficulties pupils have encountered in the use of standard works of reference.

ASSIGNMENT: Assume that you are going to teach a specific lesson in a specific textbook in geography, or American history. Show what use you could make of "collateral" material in two or three other textbooks, and why you would use that material.

The fragments of such collateral material may often be presented to the class directly by the teacher, either in the form of telling or reading. Other passages should, however, be left to be read by the pupils themselves, especially if they contain training-possibilities beyond the mere information conveyed, or the superior clearness or force of parallel explanations.

**General works of reference.** The most ready source of collateral information for the adult in his reading is the encyclopedia, or similar works of general reference. Their value for this purpose, and they have this same value for readers in training, lies in the alphabetical arrangement which makes all of their contents so easily accessible. By alphabetical order, by cross references, by indexes, and by similar devices, the material related to any topic can be found at once.

Which of these works are of greatest recognized value? With which of them, as to content and method of use, should the average reader become familiar in his school days? With which of the following works of general reference are you familiar? Which would you consider most desirable for a school library for the specific work of your grade or your special subject of instruction? Do you know the relative merits, for your prospective line of school work, of these standard works of reference?

*Encyclopædia Britannica.*
*The New International Encyclopædia.*

Do you know the relative merits of these "children's cyclopedias?"

*Compton's Pictured Encyclopædia.*
*Boys' and Girls' Book Shelf.*
*The World Book.*
*Our Wonder World.*
*The Book of Knowledge.*
*Journeys Through Bookland.*

**More detailed accounts of special topics.** Textbooks, as we have seen, are intended to give only a compact summary of fundamentals. Such books are gotten up for use throughout the whole country. In the interests of completeness of outline it is inevitable that no single topic can be given very extended treatment. Most of the elementary geographies well illustrate this point. Read the sections dealing with the countries of Europe. We find the limitations of space so cramping to the writers that most of the large cities of any country have to be dismissed with a sentence or two. Some sections read more like a catalogue than a child's reader — intended to give information but failing to give enough information to arouse interest. In one place, or at any one time, one country or city may be important in current news and of special interest to children as well as adult readers. Early in the World War universal attention was focused on Belgium and Liège; a few years later every one was interested in Asia Minor and Smyrna; a few months later the Ruhr Valley in Germany and its cities occupied the center of the stage. The teacher of geography is missing her greatest opportunity if she does not seize such occasions for stimulating a search and a contribution to her class periods of materials that will lend reality and promote an understanding of current events, far beyond what could be given by a few sentences of information contained in the complete, balanced compendium of the textbooks.

We may go beyond the rapidly changing topics of interest in current events to show the necessity of constant and intelligent adjustments and supplements to the core of the class work in the textbook. Geography or history, and many other school subjects, as taught in any one State or city, must always differ in completeness and in the emphasis given to certain topics from the treatment given in any other place. The teaching of geography in California may

demand an emphasis and an extension of the textbook's treatment of Mexico or Japan that the geography teacher of Illinois would not need to expand at all, while the reverse would be true of some other topic. Father Serra is as famous in the history of our country in the Californian teacher's eyes as Père Marquette is to the teachers of Illinois, Wisconsin, and Michigan, while Columbus is treated with equal emphasis in all these States, and with probably no different perspective in New England or the South.

**Parallel points of view.** Again, a teacher may feel, because of the social environment or the economic prospects of the class of pupils in her room or in the school, or because of the tastes or ambitions of the group, that it may be desirable to have an almost constant emphasis on some point of view parallel, or even contradictory, to that of the regular textbook. She may be teaching a course in general science in which the college-preparatory aim is constantly in the mind of the author of the textbook. She may feel that it is desirable, for the sake of interest and motivation, to make a constant appeal to the spirit of play or of constructive ingenuity, or of practical applications of the more theoretical and abstract digest of definitions, principles, and classifications or descriptions of the text. Or she may feel that in geography the emphasis on locational and political and physical facts should have a constant blending and enrichment with the social side, the life and customs of peoples. Or in history, dynastic and military resumés may seem to call for a similar vitalizing parallel for every epoch. Such collateral materials she may find in the different view-points of the authors of one or several other parallel textbooks. More often it will have to be supplied from a variety of sources. Sometimes single volumes may be found that are not intended as textbooks, but are definitely aimed to supply a common lack in all leading handbooks used for regular

class work. Such a book as H. W. Johnston's *Private Life Among the Romans* is a good illustration of how this element, omitted almost altogether in all Roman history textbooks, is supplied in convenient form for collateral use. A whole series of geographical readers might be named as intended for the same purpose. Books of this sort usually have the advantage that they were definitely written with the aim of being suited to the reading abilities of school children — a factor which is often a serious drawback to the use of the best standard and authoritative references that might be selected at large.

Suggestions as to where and how to make up such lists of collateral reading, intended for school use, will be given later in this chapter.

ASSIGNMENT: Make a list of fifty geographical readers intended especially for elementary school use. Name several "series" you found. Make a list of six topics each of which would be suitable for such a reader, and which you did not find in any lists. Tell just where you found your list of readers. Examine several of the books, and write briefly a criticism of the language and content, answering the question, "Is the book suited to the abilities and interests of the pupils for which it was intended?"

**Reading of sources on which textbooks are based.** This is another type of collateral that has been developed and used largely in connection with the study of history, but which is gradually finding its way into other subjects. We should also note that the use of such "source books" was first developed in connection with college teaching, has been quite fully extended for certain types of high-school work, and is now finding its representatives in a few elementary school courses. Just how far this college method may be warranted for use on lower levels of instruction appears debatable to some. The answer probably depends on the motive with which it is used. Source books may be intro-

duced into a course to develop a technique of study — a critical, evaluating attitude on the part of students; or to add reality and completeness to the matter-of-fact summary of the textbooks. Their introduction into high-school work was probably intended largely to serve the former, or college-preparatory, aim. Such a motive can probably find little to commend it in high-school classes, and cannot be defended at all in elementary school work. But some source material can certainly be justified on any level of school work if it is intended to serve the same general purposes we find in any other collateral reading. The fact that such material gives "original sources" lends no special sanctity; interest must always be the criterion for its use; and much of such source material is forbidding in its maturity and technical detail. The text-book synopsis of a law and its workings is probably a much more readable presentation, to the elementary and high-school pupil, than the law itself or a Supreme Court decision relating to the law.

This same objection does not always follow when secondary sources are concerned. What may be dry-as-dust in a chapter in Stubb's *Constitutional History of England* may be burning with the glow of genius in a paragraph of Macaulay's *History of England*. The former may be no help to the student of history — the pupil's textbook is clearer and more interesting — but the words of Macaulay may so far exceed this impression that the thought may be a lasting inspiration.

**Reading current literature to bring material up to date.** It is impossible for textbook makers in certain subjects to keep up to date. The amount of time elapsing between the writing of a book and its use makes this impossible in some subjects. Great events or important discoveries, recently piled one on the other, have made the newest histories, geographies, and science textbooks partly obsolete during

the process of publication. Many a child studying American history has been left with the impression that it all came to an end when a Garfield or a McKinley was shot. Changes in the maps of the world as a result of the World War have made a completely new series of geographies necessary.

Careful supplementing is necessary in such cases, and the materials must largely be supplied by current and periodical literature. The purpose of such reading is not only completeness and correctness of information, but the learning of a wise use of materials necessary for the progressive adult to keep in touch with the changes brought by each new day.

**Reading to give spirit or atmosphere.** Imaginative art has made reality more real. Fiction has made history live. Travels and fiction again give us an insight into other lands that careful, logical, scientific description never yields. The eye of the poet and of the novelist have a penetration whose insight must be borrowed by the average mind to catch an understanding of reality. Scott's romances may exaggerate, but their spirit and atmosphere give an understanding of persons and events that the correct historian can never convey.

It is this artistic imagination at its best, often controlled by careful research, that lends such promise of possibilities to some school subjects in the use of moving pictures.[1] Expensive laborious reconstructions of far-away scenes make the past live for the child and common man as no verbal, exact description can.

A vital impression may be more worth while than a painstakingly accurate one. It is more stirring, more interesting,

[1] The new series of historical moving pictures — the "Chronicles of America" — being prepared under the direction of Yale University, and which begins with "Columbus," is an example of a careful blending of historic research and artistic imagination. These will soon be available for moving-picture houses and schools.

more alluring to further study. It is more apt to furnish a lasting center of interest.

A gradual development of such material has become, in recent years, a conscious effort. Lists are now available that will furnish the teacher a wealth of material of this type.

ASSIGNMENT: Find out the name of the book that gives a list of all fiction that is in any way related to the leading events or epochs of history.

ASSIGNMENT: Make out a list of stories or novels that you could use for three of four specific topics in geography, or in history for a specific grade.

A similar type of collateral reading that may be grouped with this, in several subjects of the curriculum, is that which gives personal sidelights to abstract topics or general movements. This is found, not in the field of imagination or art, but in the field of biography. Some high-school texts in mathematics now have portraits and brief sketches of famous mathematicians. Science offers a rich field for the romance of pioneers and discoverers. Textbooks in history often need this vitalizing element to make the abstractions of causes and effects, and of eras and movements, really live. In literature the biography of the author, or that phase of his life which gave birth to a masterpiece, is often indispensable for its proper understanding. Edited texts, with introductions, often supply the necessary personal background and atmosphere. Likewise historical backgrounds are often essential to a proper understanding of some topics in various school subjects, and history and geography make important reciprocal contributions.

**Readings for present-day comparison and applications.** There is a variety of opportunities for the teacher to relate what is more or less stereotyped, formal, and lifeless in the textbook to present-day practical needs and problems. Collateral reading must be given to the child to effect the

contact between the remote or abstract, and the current values. Other methods for introducing such fresh material may be used, such as free discussions and extemporaneous contributions by the pupil. The most effective form of introducing such ideas, to supplement and vitalize the textbook, is found in the teacher's careful anticipation of it and in having the pupils prepared to take part, in a more complete and organized way, by having the necessary reading assigned in advance with the lesson in the textbook.

The superficial, inaccurate, incomplete chance contribution may be the starting point for the discussion of matters of current comparison, analogy, or application. The matter, though, should not end there. If some spontaneous suggestion introduces a topic the teacher has not anticipated, it should, if deemed worthy, be treated with dignity and appreciation, and be made the subject of further reading and subsequent discussion. Such treatment will encourage spontaneous suggestion of comparisons and applications, and will assure the pupils of interested consideration for worthy ideas or experiences. This attitude on the part of the teacher will open the door to the pupils' interests and experiences, and, reciprocally, will vitalize class work and school study as having practical, living significance.

Sources for such material must, of course, largely be the customary, accessible, current reading of the average child in the home or in his school library. The newspaper is perhaps the most prominent of this type, with the weekly news periodicals only less common, but far more valuable. In fact, it is just in this field of current practical applications that school study should be connected with the development of current-reading habits, which the school must set itself to mould and control, and to develop in such ways as to form permanent attitudes and habits. The uses, illustrations, and analogies in current events for illuminating

and applying history, civics, geography, science, or any of the reading selections, must, therefore, be kept in mind constantly.

While the sources are the same here as those mentioned above under the heading of up-to-date material, it is evident that not the same type of material is used, nor is the same purpose served. There it was the selection of material to complete the textbook; here it is a question of making comparisons and analogies for the purpose of interpreting either the textbook or current events, of making present-day applications, or of getting practical illustrations of the more formal and abstract material of the textbook.

### *2. The purposes of collateral reading*

In the foregoing sections it has been intimated, here and there, that collateral reading may have various purposes. The teacher will sometimes have one purpose in mind, sometimes another, sometimes several. Most of these purposes involve indirect values, some of which are far more important than the direct values. In fact some of these indirect values are so important that they must consciously be a part of the teacher's objectives in every subject. We shall now consider the more important of these purposes.

**To enrich minimal requirements of textbook.** This is the most obvious of all purposes in collateral reading, and may be called the direct aim of most of it. It is merely the gathering of supplementary information — an expansion of the textbook along its own lines and for the same purposes.

**To expose "interests" to a broad contagion.** This is perhaps the most valuable of all the aims in collateral reading. This exposure will sometimes be intentionally specific; sometimes intentionally indirect and general. The former contacts will be planned in such a way as to put the pupil in touch with the best authorities or the most inspiring writers

on the subject. The extent of such specific, intentional, collateral reading must vary considerably with the age of the student. In college work, such collateral reading is usually distributed in any course in such a way as to insure some contact with all the leading authorities in the field. But in high school, and even more in elementary classes, the inspirational motive, the intention to develop interests in the field of study, must be more prominent. The more general contact is the encouragement of library "browsing"; making the search for collateral serve the purpose of general influence on the reading habit. In this we are merely furnishing the occasion for natural curiosity to make accidental contacts that may promote reading and the use of libraries as a permanent habit, or developing the ability in pupils to find information for themselves on any topic.

Our biographical literature is full of illustrations of men who have found their careers and achieved almost independent, specialized educations for themselves out of such a process of either random or directed "browsing" in collections of good books. The story of Samuel Johnson's exposure to such an opportunity in his father's book shop is one of the classical examples. Many a man can get a cue, in an hour's visit to a well-stocked second-hand book store, for a dozen different lives he would wish to live.

In planning and hoping for the implanting of such an interest in every school child we may have a narrow pedagogical motive. We know that a single intellectual hobby may be used as a focus of interest in nearly all school work; we would have all of our pupils of this type, even though the interest be far removed from our own particular field. Such pupils can be reached easily, while we strive futilely with the dormant or the blasé.

But one's vision in planning such exposure must be far beyond the needs of the classroom. Such absorbing special-

ities are a fundamental prerequisite for success in life, and the earlier they can be roused the more valuable and meaningful will all school experiences become as contributions to a preparation for useful living.

In the intentional exposures we plan for the child we should probably have a fairly well-rounded vision of his future. This should include the vocational, the civic, and the recreational. Every subject in school has its contribution to make to each of these phases of life. Our school practice may conform to the current philosophy that "education is not preparation for life, that it is life." The positive phase of this epigram presents a wholesome reaction to former practices; the negation of the preparatory side may be excused as the natural exaggeration of the reformer. The practice of such a philosophy has already resulted in pernicious trivialities in materials and methods of school work.

Fortunately the majority of teachers still feel they can and should prepare children for a worthy adulthood of independence, service, and leisure. Points of interest, vital interests, in each of these three should be consciously exposed before our pupils in every subject in the curriculum. If a subject has no such possible interest values, it will not long remain in the course of study. We are making these uses, future as well as present, the objective in this method of collateral reading, just as we should in any other method of instruction we may employ.

ASSIGNMENT: Make a list of the vocational, civic, and recreational interests that should be awakened or stimulated by a particular textbook in a particular grade.

**The "bibliographical" purpose.** In the previous section it was noted that one of the indirect purposes of collateral reading was, especially in advanced courses, to give students

contact with the leading authorities in a particular subject. This is one phase, an important phase, of the bibliographical method as well, but its possibilities for use in public school work must be wisely limited. There are, however, other phases of the bibliographical method, especially on the technique side, with which even the pupils of the upper elementary grades should become familiar through practices of a simple sort.

The making of a bibliography is one of the essentials of independent investigation, even though this be of the limited sort the average adult may have use for. It simply amounts to saying that one should know where to find information on a topic, and how to make a practical selection from available lists of material. Making a bibliography is not an end in itself; it is not the mere collecting of a complete, card-catalogued list of titles dealing with a topic or problem. It may be a far simpler operation, and in this sense it is a necessary first step to any reading investigation. It may be done by proxy, but then this much of the technique must at least be a matter of school experience. But the process as a process should be consciously acquired. At present most high-school graduates, when they confront the necessity in college, do not know how to go about the matter. It is one of those bits of technique that all teachers on the lower levels do not feel a responsibility for, and that teachers on the upper level take for granted must have been acquired somehow before students come to them.

**Training in bibliographical procedure.** Bibliography is a matter that can be learned, step by step, and should find a place in varying degrees of complexity in connection with every subject where collateral reading can be used. The manner in which many textbooks are now gotten up makes the first step in bibliography work rather simple. The purpose of "lists of references" now given in many texts should

be explained to the children. The possible use of similar references at the end of encyclopedia articles should also be understood. Such lists are, of course, selected because all material is pertinent to the topic in hand.

The next step should probably be a using acquaintance with the *Readers' Guide*. Here the pupil must usually do his own selecting from a long list of articles in current literature that are closely or remotely related to the topic being studied. Actual skimming of the material to select the best must be encouraged to give the pupil this second step in bibliographical technique.

The third step, the running down of published bibliographical lists and a compilation of likely titles from them, may be uncalled for before the advanced work in the high schools. Those students preparing for inter-school debates are about the only ones who now get adequate training in such study technique. Material for practice of this sort can easily be made accessible, in any school, by using some of the bibliographical lists published by different bureaus of the United States government. These can usually be secured free.

The fourth step, the collecting of the complete, classified, card-catalogue bibliography, will usually be left for special courses in college to develop.

Teachers of history have usually done most of this bibliographical training of pupils in the upper grades and in the high school. There is no reason why this should not also be a conscious objective in English courses and in some of the other content subjects. A school system that has worked up an independent curriculum for its public schools should see that the responsibility for training in the successive steps of bibliography is assigned to certain grades and subjects in a progressive way. In schools where this is not officially provided for, each teacher should assume such part of the responsibility as her judgment dictates.

**Organization of material gathered from various sources.** This might be called the "expressional" purpose. One of the objectives in all school subjects should be a broader training in what is too commonly left to the language or composition classes. English teachers, though usually arguing from a narrow specialized point of view, are right in urging the necessity of a more general and more generous coöperation among all departmental teachers in the matter of composition, both oral and written. The expressional experience is as important, from the educative point of view, as the impressional. Outlining, telling, and writing are as important methods of learning history and geography, and science and mathematics, as they are for reading and study. In fact we have ceased to question the old dictum that "there can be no impression without expression."

But the expression phase of learning activity must be employed and developed for its own sake, as well as for the sake of success in learning. The technique of clear, forceful speech and writing is one of the general agencies of vocational and civic efficiency that has been too largely underestimated. The values of persuasion and publicity are no longer confined to a few professions. The engineer now needs them as much as the minister; the business man no less than the lawyer.

There is a significant factor in this learning of effective expression that has often been overlooked. It can probably be learned more effectively and naturally as a by-product in other school subjects than as a persistent practice in the artificial setting of composition classes. The prime essential to successful, natural expression is having something to say. The teacher of English is often hard put to it to motivate composition on the content side. The opportunity for cooperation in teaching efficient expression is best met here, and involves reciprocal coöperation. Instead of having prac-

tice in expression in English classes deal with artificial materials or forced interests, the content of other school subjects may well be used as one of the pupil's pressing daily needs and uses. If the composition teacher desires coöperation, she can herself make the most effective first step in getting it by giving it. In connection with collateral reading there is opportunity for the teacher of all subjects to get the most effective contributions from the collateral sources by insisting and helping the pupils to apply what they have practiced in their English work — clear outlining, effective reporting from notes, readable synopses, or well-digested and properly written compositions.

**Wrong extremes.** There are two wrong extremes commonly practiced in connection with assignments in collateral reading that result in very undesirable practices in the expressional activities. One is to assign only a single reference for the pupil to report on. This is most commonly the case in connection with encyclopedia references, and in such work in the elementary schools. The result is a report read by the child, usually an abstract or a frank, undigested quotation of some length, not at all understood by the reader because of its mature, condensed, technical vocabulary, and consequently of little value as a contribution because the listeners get even less than the reader. The simplification of encyclopedic knowledge in the children's handbooks will somewhat alleviate this evil, but even they have far to go still.

The other extreme is the assignment of too many references, because they are merely intended for reading and not for reporting. A well-chosen list of fewer references, which can be reported to the class, would seem to represent a more happy medium. The assignment of several complementary references will give a natural motivation to proper organization of the material selected from several sources;

the preparation of the material will then involve a more thoughtful reaction, and a more satisfactory contribution.

**To develop a critical, comparative, challenging spirit in reading.** Reference has already been made to the common "reverence for print." Thoughtless acceptance of ideas put forth in the daily newspapers — credulity often amounting to gullibility — is probably characteristic of the average reader. This is evidenced no less by the character of the material in the newspapers than by the popular reactions to such material. Even the fact that in recent years the newspapers seem to have lost their power of leadership in political affairs is merely to be interpreted as evidence of popular suspicion of the editorial columns; it is evidence rather of a wholesale, unthinking suspicion of all newspapers on political affairs than of thoughtful, critical comparisons of opposing sides of important questions. The evidence of the newspaper's dominance of popular thought — the fact that its news and specialties play a large part in the common conversation — can hardly be questioned, and the most remarkable phase of this influence is the evidence we have that even college-trained people will accept, as facts, the hurried, amateurish, uncritical reports in the news columns. Such gullibility is not even staggered by conflicting reports or contradictions on succeeding days. We never realized the extent of this common credulity, and its influence in moulding public opinion, until we saw, during the War, the whole country swayed by waves of propaganda that was later revealed as intentionally misrepresenting or exaggerating the true condition of affairs. The present reaction, of suspecting most news of political importance as "propaganda," may result in the same sort of impotence for the news columns as has long existed with reference to the editorial columns of the newspapers. The loss of this power of leadership, this influence in moulding public opinion, is highly regrettable.

**The lost opportunity of the newspaper.** This regrettable failure of journalism to realize its opportunity of leadership and its mission of forming worth-while public opinion by informing it honestly might be illustrated by the career of many metropolitan journals and journalists. Perhaps no more striking illustration could be found than the following keen criticism of Lord Northcliffe,[1] the publisher of the famous *London Times:*

It is already apparent that for want of balance and a moral continuity in his direction of policy Lord Northcliffe has done nothing to elevate the public mind and much to degrade it. He has jumped from sensation to sensation. The opportunity for a fight has pleased him more than the object of the fight has inspired him. He has never seen in the great body of English public opinion a spirit to be patiently and orderly educated towards noble ideals, but rather a herd to be stampeded of a sudden in the direction which he himself has as suddenly conceived to be the direction of success.

The true measure of his shortcomings may be best taken by seeing how a man exercising such enormous power, power repeated day by day, and almost at every hour of the day, might have prepared the way for disarmament and peace, might have modified the character of modern civilization, might have made ostentation look like a crime, might have brought capital and labor into a sensible partnership, and might have given to the moral ideals of the noblest sons of men if not an intellectual impulse at least a convincing advertisement.

But instead, the criticism continues later,

consciously or unconsciously he has traded on the people's ignorance, ministered to their vulgarities, and inflamed the lowest and most corrupting of their passions.

The degradation of journalism in this country since the days of the Civil War may perhaps be fairly expressed in the charge often made that Northcliffe merely imitated American journalism, and the criticism applied to him would

[1] *The Mirrors of Downing Street,* pages 55–56.

apply equally to many leaders in the newspaper field in this country.

**Training in historical criticism.** The worthy newspaper has a place as a powerful, efficient institution in our modern life. Wise social action, in any field, must be based on information. There is no institution or agency that can so well supply the information necessary to intelligent decisions.

As teachers of future citizenship we cannot encourage the attitude of wholesale suspicion and prejudice. We must rather try to build up in our pupils a technique of careful, critical, challenging comparison, and ability to read between the lines, a determination to make the most reasonable decisions from an imperfect or biassed reporting of events, a desire to get at truth from half-truths, a weighing of evidence in light of the rather constant attitude of the publishers or known writers in newspapers and magazines. In short, we have to teach our pupils the elements of historical criticism. We have to teach them how to treat current material in the same simple way that the historian treats his sources. One of the most valuable courses that a prospective teacher can take in the university, or one of the most valuable lines of professional reading she could undertake, would be one of the elementary textbooks used in such courses in historical criticism in the universities.

ASSIGNMENT: Find the names of several such textbooks in historical criticism, and report on the topics you find included in such a course.

How can we make a simple beginning in the elementary schools, and how best continue in the high schools, this technique and attitude of thoughtful, critical reading? Perhaps the simplest, most feasible, and most important step to guard against this subservient, blind credulity in the printed page is by confronting the pupil with conflicting accounts in "black and white." The field of collateral reading is the

chief means for attaining this. In connection with the use of parallel textbooks it has already been pointed out that pupils can and should be brought into contact with different points of view. Where bias is evident in such individual viewpoints, the pupil should be made aware of them, and the habit of allowing for them or discounting the prejudiced selection or interpretation of facts should be encouraged.

Sometimes a textbook writer's generalization may be confronted with the actual data on which his conclusion is, or should have been, based, and the pupil may be shown that the conclusion was unwarranted. The opportunity for selection of such topics will, of course, be rare, but if the teacher discovers such in a textbook they should not be overlooked. Interesting and profitable exercises may be worked up where different authors draw different conclusions from the same data. The conflicting deductions should be confronted with the source, and the pupils should be encouraged to select the interpretation they approve.

**The purpose in mind.** Perhaps the most interesting exercises in collateral reading, with this purpose in mind, may be found in comparison of any type of controversial current literature, and especially conclusions of a partisan nature in the field of civics and politics. This will make practice contacts in the realm where critical reading will be most important for the adult. It also has the advantage of being more easily obtained. Any two newspapers, of opposing policies on social, economic, or political questions, will furnish daily examples.

The teacher, in carrying out this purpose in collateral reading, must keep one thing clearly in mind. The motive is not to develop or encourage wholesale skepticism or suspicion of anything in print, although there are leaders of thought at present who would prefer this attitude of universal doubt to the other extreme of unthinking credulity.

Possibly we may be justified in going to this opposite extreme with adult readers or more advanced students. The motive should be thoughtful, critical, alert challenge rather than general doubt or distrust. It should be the beginning of open-mindedness — of the attitude of keeping judgment in abeyance, which Dewey has shown us is one of the chief essentials of good thinking. This purpose in collateral reading should be the beginning of weighing facts against authority, of preferring experiment to tradition, of valuing one's own deliberate judgment against the judgment of another. It is, in short, the beginning of a reverence for independent thinking in place of slavish acceptance of anything and everything that gets by the printer.

**Acquaintance with types and values in current literature.** The former purposes in collateral reading will naturally run on into this. Out of such exercises as have just been outlined, pupils will gradually be led to accumulate general evaluations. Such general estimates will probably be expressed in an organized way in the high school, but some foundations for conclusions will begin to be laid in similar exercises in the upper elementary grades. Perhaps the best way to explain this purpose would be a mere enumeration of certain objectives the schools should have with reference to current literature:

a. The elementary or junior high-school graduate should know something about the leading daily newspaper of his community. What is its partisan attitude? If it professes to be "independent" in politics, to what extent is it really so? If the city is not a large one, to what extent is it a real "news" paper, or to what extent merely a purveyor of trivial local gossip? Does it take a wholesome, progressive attitude on local problems?
b. If the pupil does not live in a large city, he should have similar knowledge about one or several metropolitan dailies that are widely circulated in his community.

c. As a dominant agency in any type of newspaper, local or metropolitan, pupils early in their high-school work should get to know something about the relative merits and defects of the great news-gathering and news-supplying agencies, such as the Associated Press, the United Press, and the International News Service. He should learn, by induction, the reliability or unreliability, the impartiality and the bias, that is apparent upon a little reflection.

d. He should know the methods and circumstances of news-gathering and writing, and of newspaper-making, that will help him understand to some extent the reasons for much of the unreliability and bias in the news columns.

e. Beginning in the upper elementary grades the pupil should also be inducted into some insight into the relative value of the newspaper as compared with the weekly and monthly news periodicals, or the magazines that give summaries of, and comments on, current events.

f. A little later he should begin to understand the different political and economic points of view of the leading periodicals of this type.

g. He does begin in upper elementary years to develop magazine preferences in the non-news class, and here there is imperative need for considerable wise guidance. With the meritorious, useful types he should get enough directed contacts to develop proper evaluations. Acquaintance with certain types will serve to broaden his interests in nature, the sciences, mechanics, inventions, geography, civics, and similar fields.

h. To others he should later be exposed to bring about some inclination toward the more worthy types of recreational literature. The negative side, the leading away from the "trashy" type, can perhaps best be brought about by building up tastes for the superior kinds of fiction and information.

ASSIGNMENT: Develop any one of the above sections by concrete illustrations.

### *3. Assignments of collateral reading*

**Methods of assignment.** Collateral reading assignments may be made in several different ways, one being more in line with a particular purpose than another.

a. Individual assignments of particular selections made by the teacher are more common in the grade work or early high-school years. Such assignments usually have in mind a report back to the class for the purpose of supplementing the text-book, for group discussion or comparison, and for training of the pupil in expression.
b. Alternative assignments from a more extended list of references, as made by the teacher, found in the textbook, or taken from general lists of references, may serve the above purposes and also be intended to give the pupil some exercise in evaluation and a broader exposure of interests.
c. A third form is left entirely to the pupil's initiative. No references are given, but the most available material is made easily accessible in the classroom itself or on a special reserve shelf in the library. This form may not produce such effective, systematic results, as far as class work is concerned, but it will serve the purpose of bringing the pupils into more interesting contacts.
d. The bibliographical search is an extension of the preceding form. The material is left in its proper place on the library shelves, and the pupil must make his own selections from reference lists, *Readers' Guide*, and similar aids. This has the same advantage and disadvantage as the preceding type of work, and gives in addition the occasion for practice in bibliographical technique.

These four types of assignment have been arranged in order of increasing difficulty for the pupil.

**Length of assignments.** Another question that should be raised in connection with collateral assignments is, "What is a reasonable amount of outside reading to be expected from pupils in any one class, and at different levels?" This is to some extent an individual matter, and to some extent it is governed by the nature of the course. Some general principles for working out a fair average, however, can be given.

The history teacher or the English literature teacher have no right to assume that, because the collateral method has

been more fully developed in their courses than in some other school work, they have a right to claim more than a proportionate share of the pupil's study and reading time in and out of school. The student's total day for school and home study may be fairly estimated at eight hours, perhaps somewhat less in the grades and somewhat more in the advanced high-school classes. This total time should be equally divided in an estimate for the four or five "solids" the pupil carries. Suppose this gives two hours per subject. If we deduct from this the length of the class period, we get a reasonable average of what time is left for preparation in the textbook or by any other method including collateral.

Another principle will help to reduce this to the number of pages that may be assigned. A few simple reading tests, given in a class period early in the semester to determine the number of pages a pupil can read in his textbooks in five minutes, will give some valuable results. In making such a test give the assignment to "read rapidly, as you would a novel"; make the timing accurate, and get a report from each pupil as to the exact amount he read. On the basis of such a test the class may be divided into three or more groups, according to their rate of reading. The amount of individual collateral assignments may be governed roughly according to such a classification. Let us suppose you have a group that reads three pages in five minutes. If your previous estimate makes thirty minutes a day seem your fair share of the pupil's time, outside of textbook preparation, you have a right to assign fifteen to twenty pages a day in your subject to such a group. If the collateral material is kept in a library it will probably be more economical to make such assignments only a few times a week, so that a whole study period may be devoted to it at one time. Estimates such as this will give the teacher in any subject the

feeling that she has a right to assign about fifty pages of reading per week in the upper grades, seventy-five pages in the lower high-school years, and a hundred pages or more in the advanced high-school classes. These are conservative averages, but they are averages. A few pupils will be found who should do twice as much; others will be burdened with half such an assignment.

*4. Methods for getting an accounting on collateral reading*

In getting pupils to account for their collateral reading, we must recall that such reading may in general serve either a direct, or one of several indirect purposes. The direct purpose is to enrich the minimal requirements of the textbook. Material gathered for this purpose should be brought to the attention of the whole class by the individual students, unless all are doing the same reading. Collateral reading assigned for other purposes is usually intended to give the individual pupils certain training experiences, and such reading has served its purpose when the reading has been done. In the former case the pupil's fidelity to the assignment is tested in his report to the class; in the latter case some of his results may be brought before the class, while others will have to be accounted for individually. A variety of methods has been used to check up on the collateral work in either case, the more important of which will be described here.

**Oral report to the class.** The most common form is the oral report to the class. The reading and report, though, are often good for the reporter only. In the section dealing with the "expressional" motive it was pointed out that there are common faults which the teacher in any subject, no less than the English teacher, must try to prevent. Reading extracts, or lengthy quotations in adult terminology, are of little value to either the class or the reporter. An intelligent

understanding of the reference read, a ready recall of its general drift, and a clear, simple outline should be insisted on. To make such training most effective, and to get a worth-while contribution, the pupils should gradually be urged to the point where they will need no notes. A simple outline of the speaker's main points may be helpful to the class, but this should be put on the blackboard to make the use of note slips unnecessary for the speaker. The temptation to expand such notes, especially in microscopic writing, will hamper the report and fail to develop the valuable expression-training that should be prominent in the teacher's aim.

A word should be added about the outlines. Much of the outlining values are lost, and the chief motive of such work, viz., the acquiring of a habit of planning expression, oral or written, is often defeated by carrying the outlining work to too great a degree of complexity. A simple outline of three or four topics, with no subdivisions, if it is followed, is more valuable in developing clearness, unity, and coherence than an elaborate brief with several degrees of subordination that is worked up as an exercise for its own sake, and then laid aside or disregarded in the actual composition.

**Handing in outlines or notebooks.** This method of reporting on reading done has become almost a tradition. It has no value as a contribution to the class unless all are doing the same reading. It has its value as a method of checking up all pupils on their collateral work, but it has the disadvantage of involving a great deal of laborious work for both pupil and teacher. It may, on the other hand, have some value in training the pupil in outlining. A limited amount of this type of work is probably advisable. Experimentation has shown that outlining may become so mechanical an exercise that the pupil will retain very little of what he has read, even less than he would get if he merely skimmed over

the passage several times with a conscious intention of getting the gist of it. Three or four times as much reading could be done, and the material would have more lasting values.

There are several modifications of this method, some of which are intended to prevent the mechanical, unthinking form of this activity. Pupils may be asked to combine or reorganize, in an original outline, several parallel or complementary references. They may be asked to hand in original criticism, or reactions to collateral reading, but this is usually too difficult to be satisfactory for any but the best high-school students.

**Handing in honor slips.** If the purpose of collateral reading has been served when the reading is done, this method is sometimes resorted to to eliminate the necessity of the laborious compilation of notebooks and the equally tiresome task of reading them. This method may be justified as a necessary expedient in very large university classes, where a mature sense of responsibility will get most students to do the work without being held to account for it. The immature grade-pupil and high-school pupil should not be exposed to this temptation to shirk his work.

**Oral or written class tests, or quizzes.** These can be used conveniently only for common assignments, or for readings that are very closely related to a common outline. The oral quiz has the advantage of bringing all contributions before the class, but the disadvantages of wastefulness similar to those pointed out for textbook "recitation-testing." The written test is more thorough and efficient, but will deprive the class of any possible individual contributions.

If such tests are given, they probably should be worked out in the economical, objective forms to be suggested in the chapter on Tests and Examinations (Chapter XI).

**Individual reports or quizzes.** If the purpose of the collateral reading does not include the thought of bringing the

results to the attention of the class, pupils may be asked to account for such reading individually, during a regular conference period or after school. Usually such testing may be done very briefly, if it is merely intended to establish the fact of the reading having been done. If it was intended to accomplish some indirect purpose, the questions may easily be adjusted to determine whether the end has been attained. The teacher will gradually accumulate a series of efficient questions for each piece of collateral assigned.

For example, if it is merely intended to establish the fact that the pupil has read *Treasure Island*, such questions as, "Did John Silver get any of the treasure?" or, "Did he get back to England?" would be sufficient. If the purpose has been to develop an appreciation of the best, such a question as, "Why did you like the book?" will get a sufficient response to establish the fact of the reading and give a basis for a few sentences of suggestive contrast with inferior material. Such brief, effective individual quizzes will do much to establish an attitude in the pupils that their reading is for the reading's sake, and not for the purpose of testing and marking.

### *5. Other phases of collateral reading work*

**Textbook *vs.* collateral reading.** In summary, it may not be out of place here to consider the relative merits of textbook study and collateral reading. The former has the advantages of economy of time, compactness, organization, and of dealing with fundamentals. The collateral reading, aside from its direct values of expanding and completing the textbook along its own lines, has the further values of giving pupils necessary training in a variety of attitudes, skills, and habits which must serve the adult vitally in his mature reading — a training which has been shown to be absolutely essential to efficient social living.

It must not be overlooked, though, that collateral reading is collateral, and that the core of any course, the best point of departure for such reading, should be the textbook. The perspective given by the textbook is indispensable to the most effective kind of collateral reading.

**The teacher and curriculum-making.** Curriculum-reconstruction is one of the most important phases of the reorganization of public school education now taking place. Values and objectives are being applied to every topic in every school subject. The application of the criterion of social need is causing large eliminations, substitutions, and additions to be made from and to the various school subjects. There is good reason to think that this work has only as yet really begun.

Most of this reconstruction of the curriculum seems to be carried on by the progressive superintendents and principals, or as a result of research work on the part of university professors of education and their graduate students. The textbook makers are adopting a few of the results of such research. In some cities teachers are collaborating in the systematic revision of the course of study, working through coöperating committees.

Every teacher, though, has an easy opportunity, in the daily work in her classroom, to take the initiative in the matter of curriculum-reconstruction. She need not wait for the formulation of an elaborate and complete revision. The work of curriculum-making and of curriculum-adjustment is hers every day. Seizing on important current events, local needs, and individual tastes, one half or more of her daily contribution to the pupils' development will be such as is not included in the regular course of study or in the prescribed textbooks. The collateral reading method just described is the most effective of several that she can employ for this process of adjustment and enrichment of the school curriculum.

The teacher who is anxious to improve, who is wide-awake and interested, and who feels herself successful in her school work, should recognize that prescribed courses of study have been prepared with average teachers and average classes in mind. Even an average teacher, though, should be able to do more than the prescribed work with some of her pupils. The superior teacher should be able to do more with most of her pupils. It is criminal to drag a whole class over a whole semester's work a second time, in some subject, when it has been efficiently covered and satisfactorily mastered — just because the course of study sets some average limit for the semester's work in a textbook. Marking time by such repetition will go far to kill interests that have been aroused when the material was fresh. Better employ the time by fresh irrelevancies, if there is danger of anticipating or taking the edge off the next semester's work. A wise acquaintance and use of suitable collateral materials will make either of such alternatives unnecessary.

**Collateral reading for the superior child.** One of the most important problems the classroom teacher of to-day faces is the redemption of geniuses — the rescue of the superior child from the boredom and loafing which has engulfed him because he has never been challenged to his best by limited tasks, suitable to the average child, that are usually set before him. The discovery of children of such abilities is now made so easy, by the use of a group intelligence test, that a teacher hardly seems justified in waiting for administrative initiative or the development of a research department in a school system to discover and deal with such children.

When a child of exceptional mental superiority is discovered there are two common methods of dealing with him. One is rapid promotion at the rate, and to the level, where he *must* work. This often involves administrative difficulties and social objections, if repeated too often. The other

solution is the enriched curriculum. This involves none of the difficulties and objections of the other method, and opens a field of responsibility which each teacher should assume as her own. Collateral reading is the easiest and best solution of enriching the course of study for individual pupils.

Perhaps a single caution with reference to such work is all that is necessary. Such extra work must not be loaded on too palpably as added tasks that must be accounted for. It can be given in all the forms of collateral reading that have been enumerated in this chapter, and it should be motivated by all the various purposes that have been described. It may even be extended to include worth-while reading not at all directly connected with the subject in hand, if it serves the purpose of exposure to worthy interests.

**The teacher's collateral reading.** Stagnation in teaching follows as soon as the teacher ceases to extend her knowledge of the subject-matter she is teaching. The daily task soon becomes mere routine to the teacher and uninteresting to the pupils. The teacher's knowledge of subject-matter is usually woefully inadequate at the beginning of her professional career, with the exception of those who take up departmental work in a subject that has been a specialty in their university course. Such a teacher may get along successfully for a few years on the accumulated reserve, but even for such the failure to make efforts for growth is hardly excusable. Continued progress in mastery of the subject is necessary, not to keep ahead of a class, but to maintain her own interest in it, even though the need may not be imperative for classroom information purposes.

There is no excuse for the teacher who is willing to rely on adult superiority in the mastery of the child's textbook for her complete teaching stock. A definite, progressive plan of collateral reading in one or all of the subjects she is teaching should be one of the first duties of a teacher ambitious to im-

prove and advance. It is not a question of professional reading here — of contacts with educational literature. In this context we are speaking only of subject-matter reading.

The teacher's program in collateral reading will be much the same as that which has been marked out for the pupil. Immediate acquaintance with two or three parallel textbooks, with probably daily or weekly comparisons for her own information, as well as for the guidance of pupils in their collateral work, would be a good first step. The next step would be the compiling and consultation of references to further reading, given in the textbooks, again with the same double purpose. Next should follow some extensive reading in authoritative advanced accounts that cover the whole field. Further development will require some work in the bibliography of the subject, and the teacher will then be prepared to choose and follow up more intensive studies of selected topics.

Much of this material must be selected for such complete mastery that it can be called into service on the spur of the moment for effective, interesting telling to the pupils. Nothing will so impress the pupil with his teacher's ability, or give him a lively interest in the subject, as this spontaneous drawing on rich treasures of reserve.

**The teacher's personal collateral collection.** The teacher of any subject should accumulate a small library of such books and pamphlets in her subjects as will be most usable for herself and the pupils. This does not mean the accumulation of a large private library, such as might be involved in the course of personal reading that has just been outlined for the teacher. Even college specialists no longer find it necessary to accumulate such collections. Their university libraries supply their needs far beyond what their own means could afford, and comply with their individual requests for further material. The teacher in the public schools in any

progressive community can secure the same kind of service, adequate for her own and her class needs, in the school and city or county libraries. If she has not had such service from the library of her community, it is more likely that she has not asked for it than that the request has been refused. Professional librarians over the country have developed ideals of public service beyond the realization of most of us, and as a matter of professional pride they are assuming an attitude of coöperation it would pay the teacher to test and avail herself of.

For a certain limited type of collateral material, though, the teacher should start a collection of subject-matter books and pamphlets that may be confined to a desk library. These may include a few parallel textbooks, a few of the most convenient extensive elaborations of a type readable for the pupils of her grade, and a set of general reference books or encyclopedias suitable for the type of children in her room. In such subjects as geography and history and science, many excellent illustrated pamphlets and booklets, issued by corporations, railroads, and chambers of commerce, may be had for the asking. Encyclopedias should be furnished by the school for each of the upper grade rooms, or several sets, preferably different sets, should be easily accessible for all the pupils in the school.

ASSIGNMENT: Assume that you are the teacher of a specific grade; make out a list of fifteen or twenty books you think should be in your room, including textbooks, extended manuals, and general reference books. Particularize your list for the different subjects taught in that grade.

ASSIGNMENT: Examine, in the school or public library, or by getting prospectuses from the publishers, three or four children's encyclopedias. Write out a comparison of some of their merits and defects. Which would you prefer to own? and why?

**The school library.** The limitations of the teacher's

means, and the more immediate and constant needs of instruction will naturally call for the supplementing of the teacher's desk-collection by the school library. Outside of rural schools, which in many States have a special library fund for yearly purchases, the development of a school library is usually a question for teacher initiative and coöperation. A school library is neither likely to have a beginning nor a constant growth unless teachers ask, and keep on asking, for the books they need for collateral purposes. Such a library may be started on the initiative of a progressive principal, but, unless the need is felt by the teachers, such a library is not likely to be used or to grow gradually and systematically, as it should.

If such a library exists when you come into a school as a new teacher, one of your earliest duties should be to make a careful examination of it, especially of the sections for general references, and for those subjects you are to teach. Another duty to your school is to see that the library is developed along the school lines that you are particularly responsible for. This is not a question of selfish aggrandizement of your interests. The principal or superintendent will make it his duty to see that all requests are given relative consideration, but to expect them to take the initiative for your interests is unreasonable, and is not likely to be effective. The principal can hardly be expected to help those who will not help themselves. Coöperative, concentrated pressure by all teachers may be warranted if the administrators or board have no item in the budget for library purposes, or if they are inclined to underestimate the importance of this item. Spasmodic, over-modest requests in the past are probably the reason for such a policy; and the best way to overcome it is by persistent, reasonable, requests for such teaching aids. If your situation is not what it should be in this respect, a few interested teachers can easily get data

from schools more progressive in this matter that will soon make its appeal to the pride of local authority.

**Use of the public library.** The use of public libraries should be developed far more than it is in most communities. The readiness of librarians to coöperate with the schools has already been referred to. We may here raise the questions as to why and how the public library, if it is at all accessible, should be used. A few brief, specific suggestions may be sufficient.

a. Know what the public library has that can be of use to you and your pupils.
b. Find out what special privileges you and your pupils can get in the way of number of books that may be taken out, if for school use.
c. If the library is very accessible to your pupils, ask for special reserve shelves for reasonable periods.
d. Reciprocate by impressing on your pupils the duty of courtesy and good behavior in the library.
e. Find out how far the librarian can or will go in getting books you suggest.
f. Plan library trips with your class, if this is at all feasible.
g. If it is not already the practice, try to get the librarian to permit pupils to have access to the stacks.
h. Plan assignments that will give the pupils experiences in finding things for themselves in the library. A knowledge of books gained by independent use of the library should be a part of every child's education, even by the time he graduates from the eighth grade.
i. Help the pupils to understand the use of the book or card catalogues. Ask the librarian's coöperation in this.
j. Help the pupils to get a general understanding of the principles on which the library books are arranged in the stacks, especially if this is done in the standardized way. Library technique has developed to a stage where this "if" is hardly necessary. This will help pupils to feel at home in any other library they may have access to.
k. The prime purpose is to teach pupils to become independent and efficient in their use of a library; to realize the possibilities

of its usefulness to them in their school work and in later life; and most of all to expose the pupils to a variety of possible interest-contacts. In short, it is the culmination of all the purposes we are aiming at in our use of the method of collateral reading.

## TEST AND STUDY-GUIDE FOR CHAPTER

### I. ENUMERATION

(2 points each = 6)

What three distinct objectives must the schools have with reference to reading?

1.

2.

3.

### II. ENUMERATION

(2 points each = 12)

Name six kinds of collateral reading material.

1.

2.

3.

4.

5.

6.

### III. ENUMERATION

(2 points each = 10)

Name five purposes that may be served by using the collateral reading method.

1.

2.

3.

4.

5.

## IV. ENUMERATION

(2 points each = 10)

Name five methods of getting pupils to account for collateral reading.

1.
2.
3.
4.
5.

## V. COMPLETION

(2 points each = 46)

Fill in each of the blanks in the following sentences with a single word.

1. The purpose of much of the work in collateral reading is to make pupils ..... and ..... in their use of books and .....
2. Reading has important....., ....., and ..... uses.
3. Most newspaper reading should be done in a ..... spirit. This attitude cannot be acquired without ..... in school.
4. The easiest beginning for a school library is with ..... textbooks.
5. Material in encyclopedias is so accessible because of its ..... arrangement, and the ..... references.
6. Social needs, requiring supplementary material, for most textbooks, vary according to ....., ..... and the ..... of pupils.
7. "Source books" may be introduced into a course to develop a ..... of ....., a ..... attitude, or they may be used to add ..... and ..... to the matter-of-fact summary of the textbook.
8. Scott's romances may ....., but their spirit and ..... give an understanding of ..... and events that the correct ..... can never convey.

## VI. RIGHT AND WRONG

(2 points each = 16)

Indicate, by writing "R" or "W" before each of the following statements, whether it is "Right" or "Wrong."

1. The textbook method is more economical than collateral reading for getting the fundamentals of a subject.
2. The perspective given by a textbook is indispensable to the most effective kind of collateral reading.
3. The teacher should leave all curriculum-making to the superintendent.
4. Prescribed courses of study are intended for the average teacher and the average class.
5. Individual teachers should not use intelligence tests to discover superior pupils.
6. An elementary teacher need not do collateral reading in the subjects she is teaching.
7. Professional librarians are developing a spirit of coöperation with the work of the schools.
8. The responsibility for the development of a school library rests primarily with the principal.

## PARALLEL READINGS

Johnson, H. *Teaching of History*, chapter XIII.
Parker, S. C. *Methods of Teaching in High Schools*, pages 425–35.
Strayer, G. D. *Brief Course in the Teaching Process*, chapter XVIII.
Tryon, R. M. *The Teaching of History in Junior and Senior High Schools*, chapter IX.

# CHAPTER III

## THE INDUCTIVE-DEVELOPMENT TECHNIQUE AND ITS LIMITATIONS

Herbart's influence on methods of teaching — The nature of induction — Explanation of the inductive-development method.

1. The five formal "steps" — Preparation — Specific aim — Providing the apperceptive basis — Presentation — Comparison — Generalization — Application.
2. Principles underlying the inductive-development method — Selection of particulars — Importance of general truths.
3. Advantages of the inductive method — Teaching the child inductive technique — Makes teaching purposeful — Thoughtful reorganization.

Test and study-guide for chapter — Parallel readings.

**Herbart's influence on methods of teaching.** About one hundred years ago there was developed, in Germany, a general method of teaching technique that has dominated teaching more extensively than any other form of instruction. This was the "inductive development" method of Herbart. Its only near rivals in actual school practice are the kindergarten technique of Froebel, and the "object-lesson-observation" method of Pestalozzi.

We are not concerned here with the historical development of Herbart's method. For practical purposes we may illustrate its influence by saying that during the last generation it was practically the dominating principle in theory and practice in most of the normal schools of this country, and it is only during the last few years that recent evolutions in method have risen to challenge it. It is probably no exaggeration to say that a majority of the teachers and teacher-trainers of this country, as loyal Herbartians, are trying to resist such innovations as supervised study, the project method, and other methods, as worthless and temporary

"fads." Not that they are doing this as loyal disciples of Herbart, but rather as believers in an Americanized form of his technique as introduced by several Americans who are still prominent in the field of education. One may go into almost any normal school, even the most progressive in the country, ask to see some of the student-teachers' lesson plans, and find them so nearly conforming to the Herbartian formula that the directness and the extent of the influence will be recognized unmistakably.

In fact, this definite formal planning of lessons is one of the characteristic Herbartian ideas. The other is that this plan must work up through induction to deduction. In both these respects the influence has been a wholesome one on the development of teaching technique. As a planned, well-thought-out process, instruction is bound to be effective. Proceeding logically in such a process is open to little objection, if the learning is a matter of logic. It is just here that we find the Herbartian plan has become subject to fair criticism. As a formal method it came to be applied to all sorts of materials, even where inductive-deductive logic had no chance to function. Formal devotees of the method have gone so far as to identify this one method of a possible variety as "the method," in fact as abstract "method," which amounts to taking for granted that if teaching is not formally Herbartian it is unmethodical or methodless. Textbooks in educational technique are in wide current use where this assumption is unconsciously made by the author in the discussion of all other methods, they being regarded not as distinctive alternatives but as mere helping devices to the formal, logical steps of Herbartian induction.

**The nature of induction.** Logic may be defined as a formal, scientific description of the laws or principles of thinking. One of the most common and most useful ways of thinking that logicians have formally isolated and described

is induction. Another is deduction. Recent writers have tended to treat these as a unified, complementary series of mental activities which are rarely isolated in practical everyday problem solving. But as academic exercises, as a school method, it is possible to so manipulate materials of learning that now one, then the other, shall have such prominence that each may be practiced as a valuable tool of the thinking technique.

In induction, or rather in inductive instruction, the mind is confronted with a series of distinct, but related, details or particulars, that force one to a general conclusion, a definition, a rule, a principle, or a formula. In deductive thinking or instruction one takes a rule or formula that has been so developed, or that is taken on authority, and applies it to a series of particular facts or problems. This results in an interpretation or solution useful in practical life.

In practical everyday affairs these reciprocal logical processes go on unconsciously, as we are confronted with new experiences, but the genesis of new ideas, the mastery of complicated laws and principles, may be developed by a formal application of the natural logical steps involved. By wise selection and presentation of details, the teacher may set before learning minds such material as will make possible the comprehension of generalizations that have been evolved through many years, or even centuries of human experience. Instruction is thus provided with a method that makes thorough and efficient learning possible. The learner grasps ideas which pioneers gave a lifetime to discover. Thus the passing on of our social heritage from one generation to another is made, economically and effectively.

**Explanation of the "inductive-development" method.** Herbart's great contribution to teaching as an art was that he recognized the value of using the steps in such a logical process of thinking as an advisable plan in learning. By

careful thought about the circumstances of the learning process, he determined that instruction planned for this purpose could best be carried out by having the learner proceed, step by step, through a series of four, definite, formal phases. These four were further developed by two of his pupils and followers, Ziller and Rein, into five distinctive steps, with a clear subdivision of two phases for the first step. Revisions, in the interest of clearness and simplicity, were also made in the terms used for these steps, so that we now have what are known as the *Five Formal Steps* of the inductive-development method of teaching or lesson-planning. These "five formal steps" are:

1. Preparation.
   (a) Statement of the aim.
   (b) Providing an apperceptive basis.
2. Presentation.
3. Comparison.
4. Generalization.
5. Application.

Each of these may be briefly described and illustrated.

### *1. The Five Formal Steps*

**Preparation.** This includes two distinct subdivisions, which may best be discussed separately.

(*a*) *Statement of the aim.* This is intended to give pupils a clear idea of the trend of the lesson, but it is probably more profitable as a conscious declaration by the teacher to herself as to the specific motive she has in mind. Several conventional refinements are in use in various normal schools. Some require practice teachers to state, on each lesson plan, the "general aim" and the "specific aim." The two are intended to show clearly the relationship of the particular lesson to a larger unit of subject-matter. Frequently this distinction becomes a mere formalism, as the general aim is

stated in such comprehensive form that it may be left as a standing declaration for a whole semester's work. An incorrect and a correct statement of aims in language work will illustrate the useless and the useful types.

INCORRECT: *General aim* — To teach the child to write and speak correctly.
*Specific aim* — To teach the correct use of *lay* and *lie*.
CORRECT: *General aim* — To help pupils overcome the most common errors.
*Specific aim* — To teach the correct use of *lay* and *lie*.

A second common variant in the statement of the aim is to state first the "teacher's aim," and then the "pupil's aim." In the above lesson the teacher's aim might be stated as either the general or the specific aim, as given above. The pupil's aim would be stated as, "To learn when to use *lay* and when to use *lie*."

At this point we should note the distinctive purposes for which the inductive development lesson can and should be used. For a common misunderstanding of the inductive lesson results in formal planning, and in the use of the same plan outline, even though material or the teacher's aim is not at all suited to the kind of exercises involved in the succeeding steps. This may be explained and illustrated by the concrete material used above.

The correct use of *lay* and *lie* and the other parts of these verbs can be learned in two ways — by drill, or by a clear understanding and application of the grammatical facts and rules involved. The very nature of induction demands that the child shall be brought into contact with a sufficient number of *concrete* or *particular* elements that will practically compel him to discover the definition, rule, or principle involved, or that will help him to understand clearly the rules that lie back of particular usages — in this case the grammatical usages in speaking and writing.

The correct use of *lay* and *lie* and their forms may be learned by drill on the correct forms, without a knowledge or understanding of the rules involved. This is done by imitation and repetition until the use of the correct forms becomes a habit. This is the way in which we all learned practically all the correct and incorrect forms we use in conversation or writing. Experimental studies [1] have shown that a few of the incorrect forms are so common and persistent that most children have acquired the wrong form as fixed habits. One of the most difficult phases of school work is the correction of these wrong language habits. We have now come to believe quite generally that the best way to overcome such wrong habits is to drill on the correct forms until they become automatic and supplant the others.

Not so many years ago it was the common conviction among teachers that such errors would be supplanted if the child learned the rules that governed their correct usage. This conviction dominated school practice, and resulted in a careful and persistent study of formal grammar. The practice became a tradition that was taken for granted, and still holds a large place in school language work, although experimental studies have shown that many children and adults can and do use correct English without knowing the grammatical rules involved, while others may know the rules and understand them without having such formal knowledge control their expression.

Now it is probably true that, at a certain stage in the child's development, imitation becomes rational, as social psychologists have pointed out. At such a stage a rule or a reason for or against a practice will serve as a controller or governor of conduct. Also there are stages in a child's learning when he demands reasonable authority for the teacher's

[1] Several such studies are summarized in the *Sixteenth Yearbook, National Society for the Study of Education,* part I, pages 85–110.

insistence that his common experience is an experience that has no sanction in the best usage.

In this connection it is immaterial how much value as a conduct control we are willing to grant lies in a knowledge or understanding of rules, as in grammar. We may concede such knowledge considerable influence. It is only, though, when we are trying to teach children knowledge or understanding of a rule, definition, principle, or formula that the inductive development plan of instruction is suitable. Still more, when we are teaching such generalizations, at least for the first time, it is probably the most suitable and most effective method of instruction we can select. In a drill lesson on a specific practice, however, or in an appreciation lesson, or in reports on collateral reading, or in some of the other types of general method, the steps of an inductive development plan will probably have no place at all. The use of such a plan would be highly formal and artificial, and might interfere with the most effective kind of learning.

In short, we should not use the inductive development steps unless we are actually dealing with an *inductive* process, proceeding to the learning of a generalization from particulars; and we should probably use this method whenever we are trying to teach the meaning and significance of any generalization.

With this in mind, then, we may restate our specific aim, saying that the teacher intends "the children shall learn why, or the rules by which, they may know when it is correct to use the various principal parts of *lay* and of *lie*."

(*b*) *Providing the apperceptive basis.* If this clearly is the aim of the lesson, the next problem the teacher must work out is, "What knowledge or experiences have the children of the class had that are absolutely necessary, or that will help

them, to understand and master this new rule or set of rules I am going to teach them?" Herbartians call this phase of the preparation step building-up or providing the proper "apperceptive basis," or "apperceptions' mass." This step insures a thoughtful grading or sequence of materials the child learns. These ideas of proper sequence, and of the importance of apperception, were other prominent elements in Herbart's educational theory, as well as the effectiveness of inductive teaching.

Let us illustrate again. In the model plan, what would be some of the necessary bases for effective learning of the general principles involved in the correct use of the forms of *lay* and *lie?*

(1) The fact of irregular verbs.
(2) The difference between transitive and intransitive verbs.
(3) What parts of the verb are called the "principal parts"?
(4) The difference between past tense and past participle.
(5) The fact that the past participle is used with certain auxiliary verbs, such as *have* and *had*, or any of their compounds.
(6) A drill lesson on the principal parts of *lay* and *lie* is presupposed.
(7) A clear understanding of the difference in meaning between the two verbs, which is partly involved in the distinction between transitive and intransitive.

ASSIGNMENT: These are absolutely essential elements in the apperceptive basis; can you suggest other items that would help in a better understanding?

This second phase of the "preparation" is usually an important or prominent step in the teaching. Occasionally such an apperceptive basis may be taken for granted; usually it involves a lively, intense review of such necessary related past experiences of the group. Some Herbartians suggest that the pupils should be led to recognize the problem as a result of such a review; that "the statement of the aim" should come "as the culmination of the step of prepa-

ration"; and that we should "not impose the problems of adults upon children."[1]

**Presentation.** The class is now ready to have presented to it the concrete or particular, new material that involves the generalizations that are ultimately to be reached. The most important generalizations are: That the past tense of *lie* is the same word as the present tense of *lay;* that the past participle forms of the two verbs are different — lie, lay, *lain*, and lay, laid, *laid;* that the past tense and past participle of *lie* are different; and that these two forms of *lay* are the same.

The mere statement of these ultimate generalizations, especially when stated in a comparative way, shows the seriousness of the confusion that is possible. The generalizations are given here, not because they are to be introduced to the class at this point, but because they must necessarily be in the mind of the teacher in order to select intelligently such particulars as shall involve all the data necessary that the children may draw proper generalizations. The generalizations are not made until the fourth step of the lesson plan is reached, although they must be constantly in the mind of the teacher during the third "step," namely, comparison, and often this comparison is worked out at the same time the particulars (second "step") are "presented."

In carrying on the model plan that has been assumed thus far, it would now be necessary for the teacher to prepare a large number of sentences, to be presented to the class, that would involve the use of the various forms of *lay* and *lie* in several of their more common and natural contexts. The effectiveness of such sentences would depend on the correct usage of the various forms, and this involves a difficulty that strikingly illustrates the claim that has been made about

[1] Compare Strayer, *A Brief Course in the Teaching Process,* pages 53–55.

the relative merits of drill and formal knowledge of grammatical rules as controlling correct speech. In presenting the particular sentences the pupils either have to accept the authority of the teacher for their correctness, or the teacher has to assume the children already can *do* what she is trying to help them to *know* and understand.

However, for purposes of illustrating the method, it will be well to develop the step by a discussion of the material that should be presented. It will be safer to assume here that the pupils are still in a state of "original sin" with reference to the usage, and that they should be given the correct forms on the authority of the teacher.

ASSIGNMENT: Write out fifteen or twenty sentences that you would use to present the generalizations involved. Be sure there is a great enough variety in the examples to bring in most of the more common uses of these verbs. To insure this, read the complete sections in a standard dictionary. Avoid examples using the verbs in obscure or obsolete usage. Would it be advisable to have sentences using such forms as *lays, lying, laying?*

The material used in the presentation need not necessarily be made to order by the teacher. It may be assumed as already within the experience of the children, whence it may really be drawn by a class discussion. Sometimes it may be provided for, if the necessary material is new, by a preliminary assignment of reading in the textbook or collateral work. Again, it may be gathered by a well-directed preliminary exercise in observation.

**Comparison.** This third "step" in the inductive plan is intended to bring together related elements in such a way that the fourth "step" — the generalization — shall proceed out of it as a flashing discovery, a natural conviction, a forced general conclusion. Like will be brought into contact with like, and common features of the several sentences re-

cognized. In this particular lesson, for example, a beginning of the comparisons might be made by noting that all the forms of *lay* are followed by an object, and that it is a transitive verb; similarly, that all the forms of *lie* show it to be an intransitive verb. Similar comparisons must prepare for each of the generalizations that have been named above. A complexity enters into this model series that should usually be avoided in planning an inductive development lesson. It has been introduced for a double purpose, however, which may be explained at this point.

In the first place, the process of comparison will sometimes involve contrasts, or exclusions — unlikeness which will make the likeness more real. There is, perhaps, an embarrassing supply of contrast in this model lesson, but, if the particular aim is to be attained, the confusion will have to be mastered and the contrasting and comparing will have to be emphasized.

The second purpose in introducing this complexity was to point out the importance of not attempting too much in an inductive lesson. Where a particular problem in generalization requires elaborate treatment in the presentation and comparison "steps," the necessity of reducing the induction to its simplest terms is apparent.

It is also necessary here to point out a disadvantage in inductive development teaching, which, however, has a compensating advantage. The inductive lesson is time-consuming. Probably three or four periods would be necessary to develop the plan of the lesson on *lay* and *lie* properly, but, if the work is well done, the generalization will probably be mastered more intelligently and more effectively than it could be done by any other method. It is especially superior, so far as an understanding of rules and principles is concerned, to the textbook method, which usually proceeds on the deductive plan by giving the rule on authority, with ex-

ercises to which it is to be applied. The inductive method is especially important, therefore, in the elementary phase of learning; the deductive is so much more economical that it is preferable where maturity makes induction unnecessary for a ready understanding of the general rule or definition.

**Generalization.** In this step the climax to the inductive process is reached. Its meaning needs no elaboration here. The rule or definition, the formula or principle, has been evolved and is stated.

Several practices are insisted on as essential in working out this step. The most important of these, generally insisted on by the Herbartians, is that the generalization must, by all means, be made and stated by the pupils themselves — never by the teacher. If the desired conclusion does not force itself on the class, the presentation and comparisons have not been efficient and adequate. They must then be reviewed and probably elaborated. The generalization must be a discovery — never a revelation. The greatest difficulty here lies in the range of individual differences in the class. A single keen pupil will anticipate the rest of the class in the discovery. A common method of guarding against this premature exposure is to have all the pupils in the class write out the rule or definition they have discovered, thus giving them all a chance to make the generalization.

Another disadvantage met with at this point is the difficulty experienced by children in expressing the necessary abstractness that is often found in a satisfactory generalization. Exactness of expression is also a necessity that is generally imperfectly attained. Fairly satisfactory generalizations may be accepted, and carefully amended and reworded, with proper references to the "presentation" materials to show reasons for the corrections.

**Application.** The fourth "step" has, of course, completed the induction. The presence of the fifth "step" makes it

seem more proper to speak of this method as the inductive-deductive development lesson, as is often done. The generalization, in its final revised form, is now applied to new particulars — sometimes by way of review by application; sometimes by way of problem-solving. This depends on the nature of the generalization reached.

To illustrate, in the lesson under discussion, the pupils may now be given, as an assignment for the next lesson, a number of sentences with blanks in which proper forms of *lay* and *lie* are to be inserted, with an understanding that pupils must be able to give the proper rule or explanation for every form used.

ASSIGNMENT: Make out an appropriate list of such sentences that will involve the necessary variety of forms to involve all points that should be stressed.

*2. Principles underlying the inductive-development method*

There are certain fundamental principles in education, especially with reference to the psychology of learning and the educational aims, which a teacher should clearly keep in mind. These may be considered at this point to show the special values of the method, and to emphasize further the types of material and learning to which induction is specially adapted.

Only a few of the outstanding principles can be introduced here. The whole matter has been developed in a very detailed way in the educational literature of the American followers of Herbart. Among these the most prominent have been Frank and Charles McMurry, and Charles De Garmo. The McMurrys' book on *The Method of the Recitation* is probably the classic in this field.

**Concepts and percepts.** The psychological principle at the root of this method, McMurry shows,[1] is that "concepts

[1] McMurry, Frank, *Method of the Recitation*, page 11.

are built up on percepts, general notions from particular." While later psychologists, notably Dewey, have shown that in practical everyday life learning is never as clear-cut an induction as it is usually made in this method, it must still be admitted that teaching may assume that such a conscious, and rather mechanical procedure, does have considerable value in learning that involves generalizations, concept-building, or concept-clarifying.

**Selection of particulars.** With this principle as a point of departure the Herbartians have shown, in an extensive literature dealing with various school subjects, such as geography, arithmetic, and reading, as well as in textbooks in such subjects, that particulars for teaching should never be selected without reference to general concepts to which they may be related.[1] One of the evils in textbook-making and textbook-teaching, which the followers of Herbart have done much to overcome, was the meaningless cramming of detached and unrelated facts, especially in the content subjects, perhaps most notably in geography. Remarkable "type studies" are credited to the McMurrys, in this special field of geography, which have made it possible for teachers and pupils to correlate and combine, in a single principle, great masses of detailed information which would have been meaningless without such a unifying interpretation.

A number of such unifying generalizations have become valuable permanent principles for the understanding of important industrial, economic, and social data. In dealing with content subjects the Herbartians have been successful in demonstrating their claim that "It would not be difficult to show that all the higher studies, as history, science, language, medicine, law, etc., become organized under general notions or principles; in fact, the definition of science is 'generalized, classified knowledge.'" [2]

[1] Compare McMurry, Frank, *Method of the Recitation*, page 53 f.
[2] *Ibid.*, page 11.

**Importance of general truths.** They have shown, by results in the general improvement of teaching technique, that "the mastery of the general truths of a study must remain the direct purpose of instruction in each branch of knowledge," [1] that it is (a) the mastery of rules and principles, and (b) the ability to apply them, that are, or should be, constantly aimed at in all the best school work.[2]

Along this line the attention of the progressive teacher should be called to an important item in her semester lesson-planning, which somewhat anticipates a later chapter on that subject.[3] In making a semester plan of her work in any subject the teacher should definitely formulate a list of the general truths, principles, or rules that may best be developed by the inductive plan. To be successful such lessons should all be worked out carefully in advance, with the regular outline of the "five formal steps" as a guide.

### *3. Advantages of the inductive method*

**Teaching the child inductive technique.** No type of mental activity has given the world so many valuable discoveries of truth, especially in the realm of science, as has inductive reasoning. Such mental activity is perhaps the highest and most productive the human mind is capable of. In our school work we have ceased to think the most valuable thing we can do for the child is stuffing him with information. We have come to think that, even in the purely informational subjects, much of the material dealt with is not intended for permanent retention. It is mere water that makes the mill-wheel turn, and then passes on forever useless after it has done its work.

Much of the informational data in history and geography serves the same purposes as the problems and examples in

[1] Compare McMurry, Frank, *Method of the Recitation*, page 10.
[2] *Ibid.*, page 11. [3] See chapter XII in this text.

arithmetic. These are never remembered; they serve their function in helping the pupil to use and fix rules and formulæ. So, more and more, in all school work, emphasis is passing from the learning of information to the acquiring of habits, skills, and attitudes developed from the passing contact or the temporary use of information. Important among such aims is the development of a varied mental technique — the conscious power of attacking a problem in the most economical and efficient way.

Just here lies one of the chief values and the most important limitation of the inductive-development method. It can and should serve to develop conscious control of one of the most valuable and productive methods of problem-solving. Its possibilities for service, however, are limited to that single type of thinking technique, though that one is perhaps the most important of all.

**Makes teaching purposeful.** A second advantage of the inductive development is that it makes teaching purposeful. The teacher must be able to state a clear aim for the pupils, either from her own point of view, or the pupils', or both. This definiteness of aim is more easily lost sight of in connection with some other methods, notably the textbook and collateral methods, while the purposefulness is probably still more prominent in some of the other methods to be discussed later, notably the project method.

**Thoughtful memorization.** Generalizations derived by this method are much less open to the objection that children will take on authority a meaningless jumble of symbols and, by ready repetition, give the impression that what they have memorized they have mastered to the point of understanding.

ASSIGNMENT: Look over some of the sample lesson plans given in Strayer: *A Brief Course in the Teaching Process*, or in Earhart: *Types of Teaching*. Do you find any application of the "five

formal steps" to material that is not suited to inductive teaching?

## TEST AND STUDY-GUIDE FOR CHAPTER

### I. ENUMERATION

(2 points each = 14)

Name the five formal steps of the inductive-development lesson, with the two subdivisions of the first step.

1.

a.

b.

2.

3.

4.

5.

### II. COMPLETION

(2 points each = 16)

Fill in each of the blanks in the following sentences with a single word.

1. The inductive-development method was invented by..... Among those who introduced the method in America were..... and ..... .....
2. In inductive instruction the mind is confronted with a series of distinct, but ....., details or ....., that force one to a general conclusion, a ..... or a .....

### III. RIGHT AND WRONG

(2 points each = 20).

Indicate, by writing "R" or "W" before each of the following statements, whether it is "Right" or "Wrong."

1. The inductive method proceeds from particular to general.
2. The inductive plan is well adapted to drill lessons.
3. The inductive plan is well adapted to appreciation lessons.

4. The best way to overcome wrong language habits is to teach an understanding of grammatical rules by the inductive method.
5. Pupils should be allowed to make their own generalizations in an inductive lesson.
6. Concepts are built up on percepts.
7. Particulars for teaching should never be selected without reference to general concepts to which they may be related.
8. The inductive-development method of teaching is lacking in purposefulness.
9. The inductive-development method could be used to teach pupils why large cities have grown up at the mouth of important waterways.
10. The inductive method could be used to teach the rule for dividing one fraction by another.

(Note: In this test there is only a total of 50 points. The resulting grades can be reduced to the 100 per cent basis by simply multiplying by 2.)

## PARALLEL READINGS

Bagley, W. C. *The Educative Process*, chapters XIX and XX.
Charters, W. W. *Methods of Teaching*, chapter XIV.
Colvin, S. S. *An Introduction to High School Teaching*, chapter XIV.
Earhart, Lida B. *Types of Teaching*. Chapter V on the Inductive Lesson, and chapter VI on the Deductive Lesson.
Foster, H. H. *Principles of Teaching in Secondary Education*, chapter VII.
McMurry, C. A., and F. M. *The Method of the Recitation*. Chapters II–VIII for Inductive Method, and chapter IX for Deductive.
Strayer, G. D. *Brief Course in the Teaching Process*. Chapter V on the Inductive Lesson, and chapter VI on the Deductive Lesson.

# CHAPTER IV

## STUDY AND SUPERVISED STUDY

I. The meaning and forms of study — What is meant by study — New conceptions as to purpose in studying.
   1. Reading as a form of study — The importance of reading — Rapid silent reading; skimming — Reading for comprehension — Reflective reading — Memorizing — Reading to locate material for future reference — The study of working manuals.
   2. Thinking as a study activity — Fundamental mental processes — Perception — Apperception — Conception — Judgments — Reasoning — Association — Recall — Dewey's method of problem solving — Robinson's classification of types of thinking — The reverie — Practical decisions — Rationalizing — Creative thought.
   3. Other forms of studying — Accurate observation — Experimentation — Practicing a skill — Attentive listening.

II. Supervised study — Significance of — Definition of — Analysis of supervised study — Essentials of, as a teaching device — Purposes and advantages of.
   1. Guiding pupils in their study — The four-fold duty in pupil training — Beginnings of supervised-study technique — Levels in study-guidance — Definite and exact assignments — Model assignment in American History — General preparation in a particular subject — Model of more general assignment in Literature — General study guiding — Rules for serviceable memory — Variety in class work.

III. Interest, the ultimate stimulus for study — Interest — Motivating attention — The curriculum-maker's problem — Intrinsic and extrinsic interest — A working doctrine of interest — Thorndike's evaluation of learning-process factors.

Problems for further study — Test and study-guide for chapter — Parallel readings.

### I. The Meaning and Forms of Study

**What is meant by "study."** There are various activities persons may engage in, in school and out, that we would designate as "study." The *International Dictionary* gives two definitions which imply this variety of activities. — One

reads: "A setting of the mind or thoughts upon a subject; hence, application of mind to books, arts, or science, or to any subject, for the purpose of acquiring knowledge." A second definition gives, "Mental occupation; absorbed or thoughtful attention; meditation; contemplation." In defining the verb, "to study," a distinction similar to the above is found in the two relevant definitions given: (1) "To fix the mind closely upon a subject; to dwell upon anything in thought; to muse; to ponder." (2) "To apply the mind to books or learning."

These definitions are given with a purpose of contrasting them with an almost universal misconception entertained by pupils and teachers alike. To most persons, study means getting a lesson, preparing an assignment, learning for the purpose of meeting the common artificial school situation of being tested in a "recitation." While this academic activity is included in the activities described, it must be apparent that the common type of school study is only one of a variety of mental activities that may be designated as study. It must also be apparent that what makes this common type of school study artificial is the absence of the real purpose of "thought" or "reflection," which is more or less emphasized in the definitions.

**New conceptions as to purpose in studying.** In the first definition given the purpose is stated as the "acquiring of knowledge." We are now coming to regard the acquisition of knowledge as only a partial, and perhaps a less important, purpose of study. The acquisition of habits, skills, and attitudes is now prominently emphasized among educational objectives. In the acquisition of some of these, the necessary knowledge involved is even thought of as incidental, and of ephemeral value.

An analysis of a variety of school and adult activities that are designated as study will probably help us to a more ade-

quate concept of the term. Such an analysis will also make us conscious of the fact that pupils may do, and may be assigned to do, very different types of work in school. A clear identification and analysis of these various types has been one of the most valuable contributions of the supervised study movement. Likewise, a conscious use of this variety of study-activities will greatly help the teacher in both assignment and supervision, the two most important features of supervised study when we think of it as a teaching method.

### *1. Reading as a form of study*

**The importance of reading.** We have already seen that the bulk of school work or study consists of reading, principally in textbooks. We have also noted how this reading activity may, and should be, extended considerably beyond the field of the textbook.

The whole reading activity in the elementary school has been revolutionized in the last decade. Emphasis has passed from oral to silent reading, and from slow intensive silent reading to rapid and more intensive silent reading. The analysis of the physiological and mental activities involved in reading have made possible an adaptation in teaching-method in this subject superior to the technique of instruction in any other school subject.

Out of such analyses, especially on the psychological side, there has come a most helpful classification of the purposes of reading, with a corresponding mind-set which it is possible for pupils to assume consciously. This makes possible the adjustment by the pupil of his reading activity to serve a particular purpose, if he has been consciously trained in this variety of reading methods and if the teacher, in any particular assignment, takes the pupils into her confidence as to the purposes to be attained.

**Rapid silent reading: Skimming.** Some reading is under-

taken merely for the purpose of getting fundamentals or the bare outline of thought. Skimming, hurried intense search for just the main divisions, or rapid glancing over page after page to glean the bare essentials, or the general trend or atmosphere of the selection, best serves this purpose. Such reading, introduced into public school work in the last few years and spreading rapidly, has to make its way against considerable opposition. The old idea that slow, laborious, word-by-word reading is the most effective for thought-getting is still so widely held, that the advocates of rapid reading must sometimes feel they are working against a prejudice so universal that they seem to be flying in the face of "common sense." They have, however, the whole trend of experimental, scientific studies to support them. Such experiments have not fully demonstrated the value of the new practice, but they have gone far enough to give us considerable confidence that one of the essentials in teaching reading should be the increase in *rate* of reading. Such studies have shown that there is a high degree of correlation between speed and comprehension; more than that, that an increase in rate increases comprehension scores *generally*.[1] Enthusiasts may carry the implications too far in actual practice. Dr. Burgess wisely warns us [2] against presuming too much on our correlation data: —

In reading there is almost always a demand for speed. In the early discussions of rates of silent reading, high-school and college teachers reported cases of students who, although of excellent standing in most of their subjects, were making poor records in classes where large amounts of supplementary reading were assigned. It was found that, with these students, the rate of silent reading was often so slow that they were genuinely unable to keep

[1] For a discussion of rates of careful and normal reading, see Courtis, S. A., "Standards in Rates of Reading"; in *Fourteenth Yearbook, National Society for the Study of Education*, part I (1915), pages 44–58.

[2] Burgess, *The Measurement of Silent Reading*, page 36.

up with the pace easily set by their classmates. There are students who read the ordinary novel at the rate of fifteen pages an hour; and there are others, often in the same classroom, who can read the same novel at the rate of one hundred and fifty pages an hour. It is, moreover, true that, while there are exceptions to the rule, rapid readers are usually those who get most out of what they read; in general, speed and comprehension increase together. In emphasizing speed, then, we are indirectly emphasizing comprehension; and the measure which is of greatest importance to those who are teaching reading is that which answers the question, "How much can he get, right, how fast?"

**Reading for comprehension.** A more advanced purpose in reading may be described as simply understanding. Such reading involves more thoughtful adjustments than does the previous type. The reading activity will vary from skimming to slow, careful scrutiny of some sentences, or even words. Much of the material in school work, especially of the narrative and explanatory type, need be read only a single time to serve its purpose. The details themselves of a story are merely of passing value; they need merely be noticed to contribute such values to the plot or characterization as a whole. The same is true of much in an explanatory selection. If we once understand the total idea the details have served their purpose. They have no value except in their relationships, and they are not intended for permanent retention. This fact is often lost sight of in school assignments, and the danger is specially prominent when progress is set at such a slow rate that details lose their place in a proper perspective, and assume an undue prominence because their natural context is destroyed.

When we are reading to understand there are, on the other hand, some passages, paragraphs, or sentences that have to be read slowly and carefully, either because of their relative importance or their relative difficulty. Relative importance is inherent in the subject-matter itself. Relative difficulty

is an individual matter, depending on the past experiences, the mental ability, or the apperceptive basis of each reader. Pointing out passages of special intrinsic importance becomes a part of the teacher's business in making assignments, at least during that period of a child's development when he is still acquiring the technique of proper study. For most pupils this period extends well into high-school years. The development of independence in recognizing and evaluating such passages as he reads is to be one of the aims in teaching, but such independence can be promoted by a period of evaluation by the teacher in the making of assignments, and by calling the pupils' attention to the necessity of such evaluation. Such guidance must not be continued too long, but there is less danger of overdoing it than of leaving it to be acquired by unguided experience with an expectation that necessity will result in the invention of a suitable technique of study.

**Reflective reading.** A third form of reading that may be distinguished is an extension of the foregoing. In reading to understand there will occur certain passages which require pauses for thoughtful consideration. There is a variety of terms to describe the mental processes that may be required for complete understanding of difficult, abstract, or abstruse material — reflection, analysis, synthesis, classification, associating experience, concrete imaging, illustration, comparison or contrast, definition, and doubt or challenge. With the possible exception of analysis or outlining, such methods of thoughtful solution or reaction are not sufficiently or specially encouraged as a phase of study technique. The technique of teaching them has, indeed, hardly been developed, although the analysis of such a variety of study has been developed in connection with the supervised study movement. The steps in such processes will be taken up in more detail in a later section of this chapter, dealing

with thinking as a form of study, and from another point of view in Chapter V in connection with problem-solving. The study methods there outlined should also be brought to bear on problems arising in connection with reading, and the methods of approach to a solution should be developed as skills available for any reading difficulty.

To seek for comparable or related material, and to compare authorities, is a form of reflective reading. This is the method of collateral reading, described in Chapter II, or, more distinctively, that phase of collateral study which was discussed under the bibliographical purpose. (See pages 43–45). There is more than the mere reading activity involved in this, however. There is the thoughtful search itself, and the subsequent reflection, comparison, and organization of the materials found.

**Memorizing.** A fifth form of reading is for the purpose of memorization. This will, of course, involve several or frequent re-readings, depending on the degree or nature of the mental fixing desired. There is the complete and exact verbal memorization; the fixing of the substance of a passage; or, as is more commonly the case in school work, the mastery of the substance for a temporary immediate emergency, usually the recitation period. Such reading to remember or to reproduce, either for temporary or permanent use, should be preceded by study for complete understanding. This is an apparent necessity, both as a help to economical learning and as a preventative against futile verbal memorization.

In connection with reading to remember we have several helpful principles of learning that have been evolved from extensive experimentation. These may be conveniently stated in the form in which they are given in Whipple's manual on *How to Study Effectively.*

1. Carry the learning of all important items beyond the point necessary for immediate recall.

2. When drill or repetition is necessary, distribute over more than one period the time given to a specified learning.
3. When the material to be learned by heart presents no obvious rational associations, it is perfectly legitimate to invent some artificial scheme for learning and recalling it.
4. In committing to memory a poem, declamation, or oration, do not break it up into parts but learn it as a whole.
5. In committing to memory, it is better to read aloud than to read silently, and better to read rapidly than to read slowly.

**Reading to locate material for future reference.** A sixth type of reading is quite like the first in its form, but is quite different from it in its purpose. This is skimming, or rapid reading, to locate material for future reference, either in the field of information or authority. Much of the professional man's reading, both in his university training and in after life, takes on this form and serves the double purpose of getting the "gist" of a book or an article, and of locating a mass of such material for future possible use. Sometimes the former of these purposes is not so prominent as the latter. In this case the perusal will be of the very casual, sampling sort. Much of the training and equipment in certain professions consists of this knowledge of where and how to find information or authority, when needed. This is perhaps most characteristically illustrated in the case of lawyers. This type of reading is really an extension of what was discussed fully as the "bibliographical" purpose, in connection with collateral reading in Chapter II.

We have now considered six distinctive forms of reading, with our analysis based on the various purpose each has. These forms of reading taken together constituted only a single phase of "study," certainly the most common form, and perhaps, because it is so universal an activity, the most important form of study. There are also other study activities, though, both in school and out of it, that ought to be considered to make our analysis of study complete.

ASSIGNMENT: Is the analysis of the various types and purposes of reading complete? Can you suggest any variation that might have been included?

**The study of working manuals.** Following directions for independent operations is a type of study prominent in school work in two special lines — in working problems in arithmetic and the other mathematical studies, and in laboratory work in the sciences. Usually such study operations involve a small amount of careful reading in the manuals in which the problems or directions for work are given, although this is not an essential characteristic. The problems or directions may be given orally.

Usually such study exercises have the purpose of applying rules or principles, or of giving practice for skill in such operations.

As distinctive study activities each of these involves one of the general methods in teaching, and they will be discussed fully in Chapter IX dealing with "Drill," and in Chapter VII in the discussion of the "Laboratory Method."

### *2. Thinking as a study activity*

Thinking or reflection as a form of study must be distinguished from one of the phases of reading discussed above. Thinking as a parallel or complement to certain types of reading was there taken up. The highest form of study, though, is that in which the thinking process is carried on independently, and progressively. This may be done as purely mental contemplation, but is more commonly carried on with some form of expression — usually writing — to keep a record of the progress of the thought. The recording is only incidental, however; the thinking itself is what we properly conceive of as the "study."

**Fundamental mental processes.** The term thinking is used here in a very broad sense, and study of this purely

mental type may take on a great variety of activities which we can analyze and define in more or less conventional psychological terminology. Some of these processes progress automatically from simpler to more complex forms, but it is worth while to isolate and define them for the sake of our supervised-study technique. Such analysis will help teachers plan and direct study activities, and will, if consciously trained, improve the pupil's study technique.

*a. Perception.* Perhaps the simplest form is that which is usually designated as "perception" in textbooks of psychology. We may accept as a brief definition of perception the statement that is commonly given, "sensation with meaning attached." When we consider perception as a phase of thinking we may reverse the definition, and say perception as a thinking process consists of attaching meaning to any sensation. This involves our defining "meaning," which can perhaps be done best by giving synonyms for it, such as *use*, *advantage*, *significance*, and *value*, either immediate or remote. In attaching this meaning to a sensation, interest or attention is involved. In fact we may perhaps most easily define interest as a consciousness that there "is something between" ourselves and the object that stimulates our attention. Unless we recognize such an "interest," unless we are conscious of such a value or meaning in the sensation, we are not likely to fix our attention at all.

*b. Apperception.* Closely related to perception as a thinking process, but possible of a clear distinction from it, is the activity that older psychologists designated as apperception. The meaning we put into our sensations, our perceptions, has in common the meaning most other persons who have the same sensation put into them; but, even in the simplest process of this sort that we can isolate, it will probably be found that each of those who perceive put something unique and individual into the meaning, or estimate its values with

just a shade of personal bias. This individuality of interpretation or evaluation may be distinguished as apperception, and the differences are due to the fact that each of us has a highly individual history of mental experiences.

Let us suppose I point to a blackboard from which chalk marks have been recently and rather imperfectly erased, and ask, "What do you see?" If you answer, "White," or "Gray," or "Black," you are answering practically in terms of pure sensation, and practically every one will agree with you. If you answer, "A blackboard," your answer is in terms of perception, i.e., you interpret your sensation in terms of "use" or "meaning." But if you fix your attention on an imperfectly erased circle, with a few cross lines barely perceptible, and say you see a circle which makes you think of an old game of "tick, tack, toe," which you used to play on the blackboard years ago in elementary-school days, your unique interpretation would rather be classed as apperception, which may not be shared by any one else in the group. Probably the moment you suggest such an individual interpretation you will stimulate every other person to make similar personal evaluations. The force of this has often been expressed in the common saying that a traveller in foreign lands sees only what he has brought with him.

*c. Conception.* A more advanced form of thinking is commonly designated as conception. A concept in its simplest form is a generalization involving two or more percepts, whether they come simultaneously, successively, or after intervals. Such mental reaction involves either the gaining of a clearer or more complete understanding of an object, or the formation of a class or generic idea resulting from the abstraction, or elimination, of accidental or unimportant details from individual percepts. Our concept of an orange is a combination of sensations or percepts of color, shape, taste, texture, and size, and an abstraction of certain limitations

with reference to all of these qualities. As our perceptions are built up by extensive experience we will admit into our concept the idea that oranges may be green, that they may very irregularly be spherical, and very much smaller than we ever see them offered for sale.

*d. Judgments.* Continuing along this same general line, we pass from concept-building to judgments. When used in a restricted sense, we identify as judgment that form of thinking which expresses itself in some form of assertion that combines two concepts. Often this consists of asserting that one concept belongs to, or is the same as, or may be classified under, another concept. A judgment has, therefore, often been identified as a "sentence," as we use that term in grammar, or as a "proposition," as that term is used in logic. Again, the term judgment is often used in a very loose sense as a synonym for any form of thinking.

*e. Reasoning.* Similarly, in a restricted sense, the activity we term reasoning has been described as the drawing of a conclusion from two or more judgments, or passing from one judgment to another, and so on to a conclusion. There is a variety of classifiable forms of reasoning. A few of these may be briefly identified. In inductive reasoning we pass from particular judgments or facts to a general conclusion, a principle, a law, a rule, a definition, or a formula. In deductive reasoning we apply any such generalizations to particular facts or instances, and arrive at a conclusion or solution. Both these forms were fully discussed in the preceding chapter. Another common form of reasoning involves the relation of cause and effect, and our thinking in this category involves either a discovery of the one from the other or an understanding of the relationship.

*f. Association.* In any of these forms of thinking there is usually active the process called association, the connection in consciousness of one experience with another or other

experiences so that one tends to recall the other. This connection is often natural, but it may be forced. Such associations may be simultaneous, successive, or may be cumulative over long intervals of time. Rather definite laws that govern such association-processes have been discovered by students of the mind.[1]

*g. Recall.* Such associations of past experiences with one another or with some new experience involve recall. When past experiences are recalled we speak of the process as either memory or imagination. Such remembering or imaging may be either in the form of concrete mental images or pictures, or in words or other symbols. Since the image is closely associated with the symbol, or involved in it without making a mental analysis or substitution necessary for the thinking process, it is frequently said that memory and imagination are alike in that both involve the "recall of past experiences," and memory is sometimes spoken of as a phase of imaging or bringing back a picture of the past before the mind's eye.

The two are also alike in the fact that they involve a sort of double consciousness. In memory we are not alone conscious of images or symbols of a past experience, but we are also conscious of the fact that it *is a past* experience, and we usually recall with such an image some of the circumstances we associated with it in that past. In a sense we can identify it with a more or less definite past time. In imagination, besides the consciousness of the image of the past experience, we are also conscious of the fact that the image is present to our consciousness only *as a mental* image. We know the thing we are imagining is not a real image, that it is not being presented to any of our senses now. We can, therefore, without doing violence to any reality, reconstruct or modify the image in our mind in any way we please.

[1] For a good brief discussion of these laws, see Colvin and Bagley, *Human Behavior*, chapter XVI.

Such modifications, in highly imaginative persons, may be so great that it would seem as if the mind had really created some entirely new image. Because of this it was common at one time to call reconstructive imagination creative imagination. If no modification is made in the image, and if there is merely the consciousness of unreality, without a definite recall of the past circumstances, we call the process reproductive imagination. Much of our "re-citation" of so-called memorized material is probably more properly classified as this type of recall, on the symbolical plane rather than on the plane of concrete imagery.

**Dewey's method of problem solving.** Since Dewey made his notable analysis of thinking in his *How We Think*, it has become rather common to speak of any form of thought as involving the solution of a problem, or, as he defines it, a "question involving doubt or uncertainty." In attempting an application of this idea of thinking to any school problem, the teacher may probably get considerable help for her method of approach by classifying the kind of thinking that is prominently involved in the problem, in one of the conventional types of mental processes that have just been defined. Does the problem involve concept-building or clarifying? If so, is there a sufficient number of percepts available for the pupil? Or, does the problem involve reasoning? If so, are the necessary judgments or assertions available and clear that will normally lead to the necessary conclusion? And so on. If pupils are led through a more or less mechanical technique for the various phases of thinking, and if the technique is made clear to them as a method, they should be able to build up helpful processes consciously that should promote independent thinking.

Or perhaps a simpler method of approach, which many teachers use unthinkingly, is to confront the pupil's mind with a series of conventional questions, beginning with such

words as "*how*," "*why*," "*when*," "*where*," "*who*," "*which*," and all the interrogative pronouns or adverbs. Pupils are seldom made to understand that they may start their own thinking processes independently on any problem by using these stock words, and that in doing so they are running their problem through such categories of thought as cause and effect, process, function, sequence, critical discrimination, or time, place, and personality associations. It is surprising to see the results that may be secured in discussions or compositions when pupils in the upper grades or the high school are definitely shown this simple knack, by working out some illustrative exercises in the class period. Few of us realize how extensive a place this process plays in the evolution of any extended discussion, how much of our literature is based on just this simple outline, and to what extremes of independent research this method will compel one to go, if one insists on finding answers or solutions. Dewey's own plan of problem-solving will be analyzed more fully in the following chapter.

ASSIGNMENT: Apply the method suggested in the paragraph above to some subject or topic you have never thought about before. Make a random selection. Jot down the ideas or problems that come to you. Try making these over in an organized outline.

Such analyses of the thinking process as this of Dewey's have done much, in recent years, to help us to build up a conscious technique of study. The analysis becomes so clear that we can trace it quite clearly, step by step, and can train pupils in the conscious use of the method and help them to make the use of such study technique more or less automatic — a habit of thinking. There is much more hope of a "transfer of training" than there was in the old doctrine of unconscious and inevitable mental discipline, which claimed such transfer from any specific mental act to general abilities.

It is along this line that such explanations as Dr. Judd's "generalized experience," [1] or Dr. Bagley's "concepts of method," [2] give us a far more definite task as teachers.

**Robinson's classification of types of thinking.** It is, however, necessary for adequate problem-solving that we should have still more such analyses of different phases or types of thinking. A stimulating suggestion along this line has recently been made in an important non-educational book, *The Mind in the Making*, by James Harvey Robinson.[3] The four kinds of thinking, with a brief explanation of each, will help us to understand various forms of problem-solving that the teacher should have in mind.

*a. The reverie*, or "free association of ideas." This the author describes, as follows:

> We all appear to ourselves to be thinking all the time during our waking hours, and most of us are aware that we go on thinking while we are asleep, even more foolishly than when awake. When uninterrupted by some practical issue we are engaged in what is now known as *reverie*. This is our spontaneous and favorite kind of thinking. We allow our ideas to take their own course, and this course is determined by our hopes and fears, our spontaneous desires, their fulfillment or frustration; by our likes and dislikes, our loves and hates and resentments. There is nothing else anything like so interesting to ourselves as ourselves. All thought that is not more or less laboriously controlled and directed will inevitably circle about the beloved Ego.

*b. Practical decisions.* Decisions form the second main type of thinking, of which the author writes:

> The reverie, as any of us can see for himself, is frequently broken and interrupted by the necessity of a second kind of thinking. We have to make practical decisions. Shall we write a letter or no? Shall we take the subway or a bus? Shall we have dinner at seven

[1] Judd, Chas. H., *Psychology of High School Subjects*, chapter XVII.

[2] Colvin, S. S., and Bagley, W. C., *Human Behavior*, chapter XI.

[3] The whole section, "On Various Kinds of Thinking," pages 33–62, is well worth reading for every teacher.

or half past? . . . Decisions are easily distinguishable from the free flow of the reverie. Sometimes they demand a good deal of careful pondering and the recollection of pertinent facts; often, however, they are made impulsively. They are a more difficult and laborious thing than the reverie, and we resent having to "make up our mind" when we are tired, or absorbed in a congenial reverie. Weighing a decision, it should be noted, does not necessarily add anything to our knowledge, although we may, of course, seek further information before making it.

*c. Rationalizing.* The next type is described in the following words:

A third kind of thinking is stimulated when any one questions our belief and opinions. We sometimes find ourselves changing our minds without any resistance or heavy emotion, but if we are told that we are wrong we resent the imputation and harden our hearts. . . . Few of us take the pains to study the origin of our cherished convictions; indeed, we have a natural repugnance to so doing. We like to continue to believe what we have been accustomed to accept as true, and the resentment aroused when doubt is cast upon any of our assumptions leads us to seek every manner of excuse for clinging to them. *The result is that most of our so-called reasoning consists in finding arguments for going on believing as we already do.*

The writer next goes on to show how this necessitates a distinction between "good" reasons and "real" reasons for our beliefs, and then continues:

This distinction between "good" and "real" reasons is one of the most clarifying and essential in the whole realm of thought. . . . This spontaneous and loyal support of our preconceptions — this process of finding "good" reasons to justify our routine beliefs — is known to modern psychologists as 'rationalizing' — clearly only a new name for a very ancient thing . . . And now the astonishing and perturbing suspicion emerges that perhaps almost all that had passed for social science, political economy, politics, and ethics in the past may be brushed aside by future generations as mainly rationalizing.

*d. Creative thought.* Of creative thought, the author being quoted writes:

> It is that peculiar species of thought which leads us to *change* our mind. . . . *This kind of meditation begets knowledge, and knowledge is really creative inasmuch as it makes things look different from what they seemed before and may indeed work for their reconstruction.*

Several striking examples are then given of creative thought in

> the realm of modern scientific achievement, which furnishes the most striking instances of the effects of scrupulous, objective thinking. But there are, of course, other great realms in which the recording and embodiment of acute observation and insight have wrought themselves into the higher life of man. The great poets and dramatists and our modern story-tellers have found themselves engaged in productive reveries, noting and artistically presenting their discoveries for the delight and instruction of those who have the ability to appreciate them.

### *3. Other forms of studying*

**Accurate observation as study.** We must next notice two modes of study that are prominent in all the sciences, and that have, therefore, made the most important of all contributions to the progress of civilization. There are two characteristic methods of working in scientific discovery and invention, and both these methods constitute a prominent phase of the study of sciences in the schools. This is largely because imitations of these real-life methods are most impressive ways of re-learning the discoveries of the pioneers, and also because training in the technique of observation and experiment are invaluable in the preparation and training of future scientists.

As methods of teaching, observation and experimentation will be taken up in a separate chapter dealing with laboratory work (Chapter VII). As forms of study we will be justified in making some further analysis of observation and

experimentation at this point. As observation is the earlier and simpler of these two phases of scientific study, we may take this up first.

As characteristic of scientific method we must distinguish observation from the idle curiosity and inconsequential attention we give to things about us. Keeping our senses alert for all familiar or novel sights and sounds as we go about does not constitute observation, in the scientific sense. Neither is the poet's or novelist's keen insight into nature and man, even of the realistic type, with its artistic description or its inspiring analysis, of the scientific type of observation. All such observations, whether they be of the casual practical sort or of the intense artistic type, are not made with that freedom from personal interest or emotional bias which would put them on the plane of cold-blooded, impartial, mathematically exact fact which science demands. The scientific observer must be able to set aside all subjective bias; he must note and record his observations so objectively and accurately that they may be verified by any other investigator who wishes to confirm or challenge his observations.

This scientific method has been strikingly described by Professor Thorndike in the following words: [1]

> The judgments of science are distinguished from the judgments of opinion by being more impartial, more objective, more precise, more subject to verification by any competent observer, and by being made by those who by their nature and training should be better judges.
>
> Science knows or should know no favorites and cares for nothing in its conclusions but their truth. Opinion is often misled by the "unconscious logic of its hopes and fears," by prepossessions for or against this or that book or method or result. Science pays no heed to anything but the facts which it has already made sure of; it puts nothing in the scales but objective evidence. Opinion trusts

[1] Thorndike, Edw. L., *Principles of Teaching*, pages 265–66.

its personal impressions, bows to authority and follows the crowd. Any one's opinion constantly favors the methods he is used to and is suspicious of new ideas except his own; it accepts without verification and rejects without a fair trial. Science seeks precise quantitative measures of facts by which changes and correspondences may be properly weighed; opinion is content to guess at amounts of difference and likeness, to talk in the vague terms of more or less, much and little, to rate a method as better or worse without taking the pains to find out just how much better or worse it is. Science reveals the sources of its evidence and the course of its arguments, so that any properly equipped thinker can verify for himself the facts asserted to be true. Opinion offers itself to be accepted or rejected, but not to be verified or intelligently criticized. Science is the work of minds specialized to search after truth and selected as fit for the work by their equals and superiors in it. Opinion is the occasional thought of those who, though important and capable people, are yet only amateurs in the work of getting truth.

**Experimentation as a form of study.** Independent Research and Experimentation. The other characteristic phase of the scientific method of study is experimentation. This is merely a more highly organized and a more technically careful method of observation. The phenomenon or process to be observed or studied is so arranged that the factors involved, such as causes, conditions, and results, may be *controlled.* This control is effected by exclusion, by factors being kept constant, by their being allowed to vary but by keeping an accurate measurement of the variations, or, if any factor is uncontrollable, by repetition of the experiment in such a way that such factors may be averaged or practically neutralized. The extent of the presence of uncontrollable factors ultimately determines the real values of the conclusions drawn, and accounts for the varying degrees of perfection possible in different sciences, or of different laws or principles in any one science.

The fundamental idea in experimentation, as in observation, is the accuracy of the measurements involved, whether

this measurement is of causes, conditions, or results, and so the progress of a science may be said to depend on the invention of more and more accurate instruments of measurement. This accounts for the fact that the history of science is so largely the history of the improvement in telescopes, microscopes, micrometers, and all the variety of inventions looking to the perfection of measurement. The purpose of such measurement is the expression of scientific observation in mathematical or statistical terms, which makes their analysis, comparison, manipulation, and verification more possible and more accurate.

How do these two scientific methods of study vary from other types that have been described? They often involve a reading-background and accompaniment; they involve the most systematic, painstaking, and rigorous thinking. But they also involve the manipulation, often of a highly complicated form, of objective, real materials, and such an unlimited succession of the same or slightly variant type that the conclusions offered may safely involve the broadest generalizations, in the form of laws, principles, and even of prophecies about all phenomena of the type involved.

ASSIGNMENT: Read any chapter in Libby, *The History of Science*, and report on concrete illustrations of any of the statements made in this section.

**Practicing a skill a form of study.** In another form of study this manipulation of material is still more prominent, but is carried on for another purpose — the mere gaining of skill in the manipulation of the material. This ranges from the very low level that may be exemplified by the attainments of a juggler, to the highly respected and inspiring activities of the various arts, such as music, sculpture, and painting. In some of this skill-training the term "study" finds a natural context. We speak of studying music and painting, and speak of these as study in a most respectful way.

It will be seen from the illustrations given that we can easily analyze three elements as being prominent in such activities:

a. Physical control or skill, in its narrower sense;
b. A coördination of this physical control with certain mental activities, the type of mental activity being more or less complex; and
c. An appeal to the feelings, especially pleasurable, in both those who perform and those who witness the performance or view its results.

In some cases, as in the performance of the juggler, there is a low type of feeling aroused that may be described as idle, amused, marvel. In others, as in the case of highly meritorious performances in the fine arts, there is a stirring of the noblest and most inspiring æsthetic sympathies and appreciations.

The study of such skills usually involves varying degrees of two distinct psychical developments — habits and ideals. In some forms of study in skills the habit, the automatic control, is almost exclusively present. In the worthier forms of such skill-studies the idealism is most prominent, that is, the idea plus the emotion, while the physical habit involved is a mere necessary incidental.

A further discussion of the training in skills will be taken up in Chapter IX.

**Attentive listening as a form of study.** Certain methods of instruction, notably the lecture method of the universities, compel us to recognize another possible form of study in attentive listening. This differs really but little from the type of study found in reading. The difference merely lies in the fact that the ideas come to us through the sense of hearing instead of sight. The similarity lies in the fact that ideas are communicated to us in the form of words, or verbal symbols, which are in both cases the same.

As an effective method of learning listening involves the necessity of some adjustment on the part of the learner. The symbols and their ideas come to us but once, and are then usually beyond reach for further contact. To make a more or less complete, permanent record of a lecture, note-taking is resorted to. In connection with this adjustment to study from oral instruction, experimentation has established several principles of value to the student. These may be given in the form of the rules given by Whipple:

a. If your work includes attendance at lectures, take a moderate amount of notes during the lectures, using a system of abbreviations, and rewrite these notes daily, amplified into a reasonably compendious outline.[1]
b. Whenever your desire is to master material that is at all extensive and complex, make an outline of it. If you also wish to retain this material, commit your outline to memory.[2]

In a previous chapter it was pointed out that in such activities the outlining must not be carried to the point of excessive detail.[3]

c. Before beginning the advance work, review rapidly the previous lesson.[4]

This is one of the most valuable and yet one of the most neglected rules of study, whether applied to textbook or lecture work. The principles of apperception, or perspective, of "warming up" — all have an important bearing on the significance of this rule. Teachers could do much to put students into this reviewing attitude. In textbook work a brief summary quiz on the previous lesson will help pupils feel that reviewing is part of their preparation.

In lecture work, a brief summary of the preceding day's lecture, or an habitual quiz of a few questions, especially

[1] Whipple, G. M., *How to Study Effectively*, pages 37 and 38.
[2] *Ibid.*, pages 31 and 32. [3] Above, page 57.
[4] Whipple, G. M., *How to Study Effectively*, page 19.

with reference to the general organization, will do much to motivate such review of the notes taken the previous day.

## II. Supervised Study

**The significance of supervised study.** We must now turn to that distinctive form of teaching method, recently developed as a new sort of instruction technique, known as supervised study. This method is notable because it has consciously set before the teacher two new attitudes with reference to her profession:

a. Responsibility for learning must be thrown on to the pupil far more than has commonly been done under the textbook-recitation plan of school work. The pupil must be made *independent* in his study.
b. The teacher must consciously direct the pupil in *methods of study* so that he may become *efficient* in his independent work.

In order to do this successfully teachers and teacher-trainers have themselves been compelled to make a more exact analysis of the technique of study in all its varieties, and have had to invent means of explaining these to the pupils and of illustrating the various study methods in practice exercises.

To students of education in normal schools and universities we must give preliminary warning that, as a result of their own experience in the public schools, and especially in high school, the term "supervised study" is apt to be misunderstood. Supervised study is not "policed study" — the type so commonly found in the "study-room" periods of a departmentalized school. The activities of such a study period, as far as both students and teachers are concerned, are quite different from those found under "supervised study" properly so called. In the old form of policed study the teacher's function is almost wholly disciplinary; she is there simply to keep order, to see that all students get a fair

chance to study during the period. The students are all studying whatever lesson they please, and often are preparing very distinctive types of work for different grades, for different teachers, and in different subjects.

**Definition of supervised study.** Supervised study may be called directed study. The teacher gives very definite directions as to steps, methods, and goals of work, and makes personal examination of the work of individual students without interfering with the continuing study of all others. It is a substitute for the inefficient and wasteful "recitation" activities of the class-period on the one hand, and for the fictitious "home study" of the pupils on the other. The studying is usually done under the same teacher who gave the assignment, and the teacher usually devotes her time to supervision, that is, to supplementary direction and to testing and approving the work of the pupils. She either moves about the room as pupils call her attention, or they come to her desk for consultation as they need it.

**An analysis of supervised study.** Supervised study is possible under two very different conditions. It may be installed in its most complete and thoroughgoing form by *administrative* arrangements within a particular school or school system. Or it may be used as a *device for teaching* within a particular classroom, even if administrative arrangements are not made for its complete installation.

If supervised study is instituted by administrators in a whole building or system, two characteristic conditions will be found:

One arrangement is the division of the day's schedule in such a way as to provide for study periods during the school time of such length as to get the best results, and to have such study periods, even in a departmentalized school, arranged in such a way that the pupils will do practically all of their study in each subject under the supervision of the

teacher who makes the assignments and does the testing, and who conducts the recitations in that subject.

The other administrative arrangement for supervised study recognizes the fact that, if assignments and study are carried on by this plan, there will be quite a large opportunity for differences in ability and application to assert themselves among the various pupils in any one class.

If supervised study is carried through in this thoroughgoing way, individual instruction and individual progress will be such important elements that it will be found that the brighter pupils will cover satisfactorily any semester's work in one half to one third, or even one fourth of the time taken by others. In that case the administration will be required to make provisions for a very elastic system of individual or small-group promotions. The only alternative will be the provision of widely differing courses of study in parallels, so as to give the brighter pupils a very much larger field of work to cover in the same time taken by the average or slow pupils and for a course limited to minimal essentials.

Whatever may be said beyond this of supervised study as a method of classroom instruction will also apply to supervised study with the above administrative conditions provided.

**Essentials of supervised study as a teaching device.** If we suppose a school where the administrative arrangements are not made for its most successful prosecution under the longer-period plan, and where pupils cannot be given the advantages of promotion according to their abilities or application, the classroom teacher may still take advantage of the supervised-study method for at least a part of her regular work with any given class, or in any particular subject, or for occasional periods.

In either case the teacher must understand that supervised

study as a classroom method involves the following four essential activities:

a. Careful, detailed assignments or study-guides.
b. Study by the pupils under the supervision of the teacher that made the assignment.
c. Supplementary, individual supervision and direction of the pupils, to round out the general assignment, and while the actual studying is going on.
d. Individual testing of the progress of the pupils. This activity, and the one immediately preceding, must be conducted in such a way as not to disturb the continued study of all other pupils in the class.

**The purposes and advantages of supervised study.** Before analyzing these four steps in detail, it may be advisable, in order to understand the method more fully, to make some statement about the purposes and advantages of the supervised-study method of teaching.

Where the full administrative arrangements mentioned above have been made for the supervised-study plan, there are two important initial advantages:

a. Effective school study is substituted for the ineffective, wasteful, and probably unwarranted expectation of home-preparation; and
b. Bright pupils are given a fairer chance to make the most of their abilities.

There will be far less chance to bring the charge, now growing in seriousness, that the school is not only neglecting, mentally starving, but criminally spoiling this most valuable social asset of genius and leadership. At the other extreme, the slower pupils will be given a chance to proceed through any given piece of work at a rate commensurate with their powers, without either being discouraged by the repeated failures inevitable under a rigid system of promotion, or being compelled to waste a large proportion of their time in repeating work it is not necessary to repeat.

Where the administrative arrangements mentioned have not been made, and the method is confined to the individual classroom, there are advantages in its use that have been demonstrated by careful experimentation, and that appeal to any thoughtful teacher as of sufficient weight to challenge her to some experimentation with the supervised-study plan. Primarily, the supervised-study method is aimed at doing away with the disgraceful waste of the ordinary "recitation period" in courses involving the use of a textbook.

### *4. Guiding Pupils in their Study*

One of the principal functions of the teacher is to guide her pupils in their study activities. It may be worth while to see this in its larger relationships, before making a detailed analysis of this particular phase of the teacher's work.

**The four-fold duty in pupil training.** In a sense it may be said that the teacher has a four-fold duty or relation to her pupils:

a. She must guide and lead them in their work.
b. She must police them while at work.
c. She must test the results of their work.
d. She must inspire them with proper attitudes toward their work, and toward the relationship they have and will have in life outside of school.

A higher conception of the teacher's work will result if greater emphasis is put on the first and last of these than is commonly found at present. Too many teachers, with improper training and inadequate ideals of their profession, are content to do their work on the hack level of policing and testing. The words are chosen with a purpose. The problem of discipline, of keeping a class or room in order, and of calling pupils to account for *their* work is too often thought of as a satisfactory day's work for a teacher. A much higher

ideal should be set for the profession, and this should dominate most of the teacher's relationships with her pupils — to teach them *how* to work, and to instill in them the *desire* and the *will* to work, not to satisfy the teacher or to please, not to meet her requirements and tests, but to work for the real values and rewards that such work will bring.

This does not mean that the teacher is to be a preacher, to spend her time exhorting pupils to work. It means an effort to gain a sympathetic understanding of the needs of the children as learners, a clear professional understanding of how these learning needs may best be met, and most important of all, to give them an attitude toward, and a vision about, the values of the things that are to be learned that will inspire the pupils with a realization of these values. If this guidance and inspiration is present, the policing will become merely incidental to greater and more permanent gains. The inspirational function of the teacher may largely be a matter of personality, which some think beyond the possibility of direct training, and the most important of her qualifications or disqualifications. Personality may be subject to development and cultivation, but in either case it lies outside the field of the present discussion.

**Beginnings of supervised-study technique.** But the work of guiding pupils in their study is a matter of technique, and is capable of being acquired and developed systematically and progressively. Just what may and should be done in such study-guiding is the problem of this section.

One of the earliest accounts we have of an experiment in supervised study brought out an interesting condition of affairs that illustrates the needs and possibilities along this line of guiding pupils in their study. In one of the progressive high schools in Illinois, in a pioneer experience with supervised study, the school day was divided into six periods. No classes were scheduled for the sixth period, but on Mon-

days the pupils went for this last hour to that teacher to whom they recited during the first period of the day, on Tuesdays to the teacher of the second period, and so on. This extra period each week was supposed to be devoted by the teachers to explaining to the pupils just how they were to study that particular subject — English, history, algebra, or whatever the case might be.

A few weeks after the experiment had been started the teachers met in a faculty meeting to discuss their experiences. The interesting development was that first one, then another, and finally most of the teachers declared that they had to admit the plan was a failure, as far as they were concerned, because they simply were at a loss as to what to tell their pupils. They had never fairly faced the problem of study-guiding. But the experiment was made a success, because the teachers were determined to show they were worthy of their work and would learn how to guide the pupils' study in their several subjects. The development of such study-guiding technique, a product of the supervised-study movement, has now reached a stage where we have a number of books of general guidance for teachers in such matters,[1] as well as several of a series dealing with the supervision and guidance of study in particular school subjects.[2]

**Levels in study-guidance.** This leadership or guidance of the pupils in their study may take one of several phases,

[1] Hall-Quest, A. L., *Supervised Study.* Macmillan, 1916.
Whipple, G. M., *How to Study Effectively.* Public School Publishing Co., 1918.
Sandwick, R. L., *How to Study.* Heath, 1915.
Miller, H. L., *Directing Study.* Scribners, 1922.
Thomas, Frank W., *Training for Effective Study.* Houghton Mifflin Co., 1922.

[2] Simpson, Mabel C., *Supervised Study in History.* Macmillan, 1918.
McGregor, A. Laura., *Supervised Study in English.* Macmillan, 1921.
Sumner, S. Clayton., *Supervised Study in Mathematics.* Macmillan, 1921.

some dealing with particular lessons or even specified tasks in a lesson; other types of this guidance may involve directions for studying a particular school subject, or the method of study for a whole month or a semester's work; while the most generalized form will consist of giving pupils rules or methods of study that will hold for any subject or for any teacher at any time. These various levels of study-guiding will be explained and illustrated in detail, proceeding from the very specific to the more general.

**Definite and exact assignments.** The improvement of the assignment is one of the values that has come to teaching technique from the supervised-study movement. For many years educators and supervisors had been denouncing the bad-assignment habits teachers had easily and naturally fallen into in connection with the textbook-recitation-testing method. Assignments were hurried, perfunctory, and often unpremeditated statements like these: "Take so many lines, or problems, or pages in advance for to-morrow," or "The advance lesson will be from page 60 to 65, middle of the page, to the topic, Washington Crosses the Delaware."

A bare statement of the limits of the advance lesson constituted the assignment. The method of preparation was taken for granted. All the pupils knew was, that they would be expected to "recite" in the usual manner. There was no evaluation of the new material. There was no recognition of the fact that there were different degrees in thoroughness of preparation, or in method of reading and study. There was hardly a consciousness that almost every pupil had his characteristic conception or misconception of what "study" meant. Occasionally there was a bit of introspection and readjustment in the pupils' study "methods."

As the pupils came to a new teacher, it was found that the method of work that had been done the semester before was inadequate or excessive. Some of the pupils readily made

the adjustment on their own responsibility, others floundered in a daze until continued failure made them conscious of the new needs, or until the teacher discovered the necessity for some general suggestions about preparation. Some pupils would never discover the rule: "In general, use in your studying the form of activity that will later be demanded when material is used," [1] even in its academic implications. Some pupils would expend their ingenuity in evolving a method of evading the "form of activity" that the academic situation would methodically demand. Others blindly persisted in applying their particular and often limited conceptions of study to every situation and for every teacher. Highly conscientious pupils have been known who were absolutely at a loss to know what was the matter with a teacher who would not let them recite their history lesson after they had gone to the trouble of memorizing it. Equally conscientious students, to whom study meant several careful readings, resented the injustice of failing on some particular detail, like a date, that the teacher expected to have memorized without telling them so, when their general knowledge of the whole lesson was superior to what was accepted as satisfactory from other pupils.

**Model assignment in American history.** We may contrast such indefinite, irresponsible assignments with the following:

The assignment is for a week's work in a seventh-grade class on Chapter XII of Thwaites and Kendall's *History of the United States*. Note that the assignment involves considerable planning and preparation of material by the teacher. Also note how a variety of general methods are included, without any "recitation-testing." The assignment is made on the first day the new chapter is taken up, let us suppose Monday, at the beginning of the period.

[1] Whipple, G. M., *How to Study Effectively*, page 21.

For the next five days we are to study Chapter XII, "The Conquest of New France by England." We will first take ten minutes for the class to glance over the chapter to find the main points in Questions I, II, and III [1] written on the blackboard. As soon as you think you have found them, write them down. Write your name at the top of the paper. They will be passed in at the end of the ten minutes. Begin.

These papers will be glanced over by the teacher during the succeeding study period when the assignment has been completed, and should yield some helpful diagnosis of individual needs. When time is called, have the papers passed in by a system that will bring them to the teacher in the order pupils are seated by rows and seats. Some such direction as, "Pass the papers to the right or left or forward, and put your own on *top* of those you receive," will effect this.

As soon as the assignment for the rest of the week has been completed, I shall pass out the test we are to have on this chapter on Friday. We will have a study period to-day and to-morrow; you will use the test for a study-guide.[2]

When you get the test, first try to recall what you wrote in your outlines, and then fill in Questions I, II and III on the test after you have skimmed over the chapter. We will discuss this outline the first thing in our discussion period on Wednesday. Correct your test paper if your later study of the chapter shows you were wrong. When you have answered these questions, go ahead and fill in the rest of the answers on the study-guide test.

On Wednesday we will have our discussion period. I shall call for topical recitations at that time on these topics which I have written on the board:

1. How New Orleans Was Founded.
2. Washington's Expedition to the West.
3. The Albany Convention.
4. The Fall of Quebec.

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[1] See page 311 of this book for the test to be used as a study-guide in this assignment.

[2] See sample of test for this particular chapter of the Thwaites and Kendall text on pages 311 to 314 of this book.

We will also discuss other questions on the test and any questions you may want to ask.

On Thursday we shall have a socialized recitation on the chapter. We will have special reports on these topics on the board.[1] I have made out slips for each topic with the references, and I will pass these out to the pupils who are to make the reports. If any of you have time and can find anything on these topics in any book, you will be prepared to take better part in the socialized recitation.

We will have fresh test papers for the test on Friday. The test will be the same as that which I am handing out to-day. The test will be limited to 20 minutes. After that we will review any questions you had difficulty with in the test.

Next Monday we will have a study period for a review on Chapters VI to XII. I will give you, to-morrow, a copy of the test we are to have next Tuesday, and you will use that as your study-guide. If you have any time between now and next Monday you might begin your review by yourself.[2]

Such specific assignments are especially necessary where the supervised study method is used. Pupils must work independently and complete their work to the inspection or testing state with a minimum of additional individual direction. This will involve, in a group of mixed abilities, an excess of definiteness in the assignment, so that the slowest, least independent, have sufficient direction to proceed with the work.

One of the most helpful devices for assignments in work of this sort is to give the pupils the test as a study-guide, as was done in the model assignment above. This involves making a test that shall not be a mere sampling, and that involves a thoroughgoing evaluation of most elements in the lesson. The use of objective devices in testing, like those that have been evolved in connection with the standardized tests in the various school subjects, will prove most helpful in work-

[1] A list of topics based on such collateral reading as is available from the readings given in Thwaites and Kendall's text, pages 138–39.

[2] See copy of this review test on pages 314 to 316 f. of this book.

ing out a set of combination study-guide tests. This method will be explained in detail and will be fully illustrated in Chapter XI.

ASSIGNMENT: To what extent would the tests, given at the end of each chapter in this book, constitute a satisfactory study-guide? In what ways are they inadequate for this purpose? Does the instructor's method affect their possibilities as satisfactory study-guides?

**General preparation in a particular subject.** Directing pupils how to prepare generally in a particular subject may be done in connection with a variety of general methods of conducting the class period, but it is highly desirable in connection with the supervised-study method. There is no reason why such directions should not be given even if the teacher is using the textbook-recitation method. Such study-guiding will be an important economy in connection with any method, since it will make the daily assignment much simpler, and the results much more satisfactory. If the teacher prefers a single consistent method of instruction in a particular subject for a whole semester, let the matter be explained clearly and frankly to the pupils at the beginning. When they show they have learned to adapt themselves to the new method, the old condemned type of assignment, which merely states the limits of the advance lesson, may be justified.

**Model of more general assignment in literature.** Let us suppose the pupils are to begin the study of *The Lady of the Lake*. The teacher's method may involve the idea that it will be necessary for all pupils to read the poem through once quite carefully, at the beginning; that they must all do this at least at a certain minimum rate; and that there must be some method of daily accounting to show that each pupil is proceeding at this rate. The device of simple outlining (probably not the most advisable to keep the pupils from re-

garding the reading of the poem as a task) is resorted to. The pupils are told that this outline is to be handed in each day, or that each must be prepared to read his topics. The assignment and explanation of method might be left at that stage. Far more satisfactory results will be secured if the first period is spent in helping the pupils to get a more satisfactory conception of how to outline the poem. The following steps in this introductory exercise would be helpful:

a. Show pupils how the stanzas correspond to paragraphs in prose.
b. Show that the stanza units are either narrative or descriptive.
c. Indicate that a satisfactory topic for a narrative stanza would be a single sentence, that tells briefly what happens in the stanza.
d. Similarly indicate that a statement of what is described is satisfactory for a descriptive stanza.
e. Have as many of the opening stanzas read as the time of the class period will permit. Ask for several topic suggestions for each stanza, compare them, and select the best, giving reasons or having pupils give reasons for the selection made.
f. Tell pupils they are to follow this method throughout the first reading as the daily assignments are made.

**General study-guiding.** We must recognize successive levels, with distinctive needs, in study-guiding. In the lower grades we would hardly expect to meet with much success in trying to teach pupils some general principle of study technique. At first our study-guides will be merely specific directions as to how to study a particular lesson. Later we may show pupils how to prepare work in a more general series of lessons, or in a subject. We will begin to teach pupils how to study spelling or geography, or how to study arithmetic or history. Against a background of such experiences the pupil will later be prepared to gather generalizations as to methods of study, and he can be taught certain

standard forms of attacking study problems which he can apply and modify as occasions demand.

An illustration of study-guiding in this general way may be seen in the following directions, given to a university class in an introductory course in education in which Bagley's *Educative Process* and Judd's *Introduction to the Scientific Study of Education* were used as textbooks. It is introduced in full, not only as an illustration of the method of study-guiding, but also because it may serve the same purpose for this textbook, or for many of the textbooks used in education courses in normal schools or colleges.

### STUDYING EDUCATION; MODEL OF GENERAL STUDY-GUIDE

*I. Master the text.* It is selected as the teacher's estimate of the one best book in the field. But when the instructor assigns a lesson for reading or study, the problem is at once raised in the student's mind, What do you want us to do with this?

a. Why does that question naturally arise?

(1) Either, you want to do as little with it as is necessary to satisfy the teacher. Is this a proper attitude?

(2) Or, you are conscious that you can do very different things with any reading assignment, from "skimming" to memorizing.

b. In content subjects you have a right to more complete and explicit directions. In *Educative Process* I want you to prepare for a quiz, as one of the devices for scoring or grading so large a group; and I want to be sure that you have studied the assignments thoroughly enough so that you will have an intelligent background for class discussions and lectures on supplementary material dealing with the same topics. You can't tell just what degree of preparation that involves until you have had the experience of the first quiz. I can't tell you just what that quiz will be like, of course, until the time comes. The first will be a sample of the succeeding ones. But I can tell you that you ought to get:

(1) The general organization of the discussion in a chapter, or of the principal problems discussed; that the topical analysis of the Table of Contents will be of great help to you in picking this up as you study.
(2) That you ought to remember the outstanding points or divisions in any well-outlined section.
(3) That where it is a question of an extended explanation or argument you should know the principle or proposition involved and some of the leading steps in the discussion.

*II. Problem solving.* Look up any problem that is not clear to you in several other books. I could give supplementary references, but we ought to apply Whipple's Rule 14 here, "Don't apply for help until you have to." You ought to learn the knack of finding your own supplementary references. Too much help is usually given here by university teachers. One of the valuable concepts of method in intellectual work, that a student should have acquired in high school, is often not even learned in the university until graduate work is taken up. Every undergraduate should have the knack of making a bibliography. There are two reasons for this:

1. It is the only way of developing intellectual independence in research.
2. It gives you an extended, first-hand contact with the literature of the subject. If you are going into teaching you should do a lot of browsing in books on education, and especially in the indexes and tables of contents.

In making such a search of educational literature, be sure you know just what you are looking for. We will work out an exercise on this some time soon. Tell us of a difficulty you met, how you went about getting supplementary material, and what you got out of the search in addition to what you started to find.

*III. Abstract and concrete.* Get at abstract principles by interpreting them in the concrete. When a psychological, philosophical, or social principle is applied to educational practice in the discussion, or is illustrated in a concrete way, it is easier to understand and more valuable to remember it so than in its more abstract form. However, if the abstract principle is quite clear to you, think it through for yourself by working up

examples or illustrations from your own school experiences or your present general stock of knowledge.

*IV. Read with a spirit of challenge.* Do not hesitate to disagree with any opinion you see. In no professional literature are there so many enthusiastic hobby riders as in education. You have a right to your own opinion and you should think for yourself, but do not express your disagreement until you have a convincing line of argument worked up.

*V. Learn to skim.* Should you outline this material into notebooks? I should say, "No." Why not? Outlining is unnecessary, mechanical, laborious, and wasteful of time. Rather skim several times, discover the important parts, and devote the extra time to clinching the things that look big to you.

Another helpful illustration of the application of psychological analysis applied to the problem of general-study technique is found in the following outline of a chapter entitled "Rules for Serviceable Memory," in Seashore's *Psychology in Daily Life*, chapter II. A careful application of these general rules for memorizing will have far more practical value than the "systems of memory" so widely advertised in some of the popular magazines.

RULES FOR "SERVICEABLE MEMORY"

*I. Rules of Impression.*

1. Selection — Select your field of interest.
   Corollary — Dare to be ignorant of many things.
2. Intention — Intend to remember.
   Corollary — Trust your memory.
3. Attention — Attend to the selected object.
   Corollary — Secure the most effective form of Attention.
4. Elements — Grasp the elements.
   Corollary — Let essentials stand out in relief.
5. Primacy — Trust the primary impression.
   Corollary — "Do it now."

*II. Rules of Association.*

1. Relationships — Recognize relationships.
   Corollary — Be familiar with the laws of Association.

2. Analysis — Form habits of analyzing.
   Corollary — Learn by thinking.
3. Forcing — Force concrete imagery.
   Corollary — Fix the first fancy.
4. Large Units — Grasp in large units.
   Corollary — Remember ideas, not words.
5. Synthesis — Observe synthetically.
   Corollary — Build elements into a whole.
6. Practice.

*III. Rules of Recall.*

1. Persistence — Be persistent in the effort to recall.
   Corollary — Seek clues and follow them; try.
2. Repetition — Repeat the recall often.
   Corollary — Never miss the opportunity of seeing a good friend.
3. Rigidity — Be rigidly exact in recall.
   Corollary — In forming a habit, suffer no violation.
4. Relevance — Keep out the irrelevant.
   Corollary — Concentrate on the recall.
5. Rest — Rest economically.
   Corollary — Respect the attention wave.
6. Practice.

*IV. Rules of Recognition.*

1. Recognition — Recognize the memory image as you would a friend.
   Corollary — "Cut" your friend, and he will cut you.
2. Imagery — Cultivate realistic imagery in recognition.
   Corollary — Reinstate the original setting.
3. Expression — Express the recognition in appropriate action.
   Corollary — Grow through self-expression.
4. Transference — Transfer from conscious to organic Memory.
   Corollary — "From conscious effort to ready skill."
5. Forgetting — Learn to forget the useless.
   Corollary — Keep your card-catalogue system alive.
6. Practice.

**Variety in class work.** Where supervised study is used as a method of instruction it must be recognized that certain socializing values may be lost unless special provision is

made to conserve them. This may be illustrated by any of the content subjects. The history class lends itself specially to the development of the pupils along two important social lines. One of these is the ability to talk clearly and connectedly for some time to a small group. The other is the ability to take part in a more or less formal way in a general group discussion or conversation. These two social accomplishments are perhaps best provided for respectively by the class exercises commonly called "Topical Recitations" and "Socialized Recitations."

The American history class furnishes interesting and important content for these two types of social practice, because talks and discussions of this kind use an almost identical material and method to that found in adult life, in the large or small group discussions of civic problems and current events.

The general organization of teaching method outlined in an earlier part of the chapter (pages 119–21) involves four distinct phases of class activity:

1. Initial *study* of a large unit (usually a chapter) of the textbook, on the basis of detailed assignment and *under supervision*, during the first two or three class periods.
2. Supplementary presentation, for a single period, of certain selected topics in formal talks, or *topical recitations*. This is especially advised for narrative and descriptive sections of the text, or collateral reading.
3. Supplementary group discussions of selected topics in a well-organized *socialized recitation*. This is especially advised for the discussion of explanatory and argumentative sections of the text, or collateral reading. The civic value of discussions of this type on problems that have arisen in our past history, and that are still prominent in the politics of to-day, should be recognized by every teacher of history. The detailed technique of the socialized recitation will be taken up in Chapter X.
4. Group tests on the material covered by these different exercises. Further illustration and explanation of economical and efficient devices for such testing will be given in Chapter XI.

## III. Interest, The Ultimate Stimulus for Study

**Interest.** As is implied by the derivation of the word, interest involves a recognition by the mind that there "is something between" the thing to which attention is directed and itself. That "something between" it and oneself usually presents itself to the mind as an advantage, profit, significance, possible satisfaction, pleasure, or usefulness that may be derived if continued and more particular attention is given it. Interests may be purely intellectual, but more commonly have an affective or emotional accompaniment. Even in the simpler forms of mental activity, the mere perception of some familiar or some strange phenomenon, we are conscious of an accompanying feeling of pleasure or discomfort.

Taken from another point of view, the things that interest us do so because we can clearly and readily recognize that that which challenges our attention has an advantage, meaning, or use for us either as an individual, selfish satisfaction, or because it has significance for the social relationships with which we have identified ourselves. These social relationships may be on the mere lower level of group consciousness, a modified form of egoism, or they may be on the much higher level of our ideals of service to a social group with whose welfare we have identified our highest interests.

**Motivating attention.** The problem of interest plays such an important part in education because success in all teaching involves the arousing of sufficient interest to motivate study, that is, to get a pupil to reading or thinking about some topic or problem. Unfortunately the values or advantages of many phases of school work are not readily apparent to the learner. This is partly due to the fact that the material is necessarily found in an academic, artificial setting, and partly to the fact that the significance or advantage is so

remote, so far in the future, that the pupil is too immature to recognize these values. The teacher, as the representative of a social organization which requires that the child shall be prepared for a future which he cannot evaluate, and by means which do not readily appeal to his interests, must in some way motivate the learner's attention in spite of this inability of the pupil to recognize his own great future and permanent interests in such matters.

This school problem of motivating attention on remote interests has been met in various ways.

Its validity and advisability have been challenged. This is a doctrine of interest that has become widespread in recent years, and constitutes one of the cardinal principles in Dewey's philosophy of education.[1] Whatever one may think theoretically about this attitude as a protest against the old extreme doctrines of formal discipline, and the "pouring-in" of logical systems of verbal information, there is no question but what this new attitude has evolved into a fallacy in the practices and applications of many of Dewey's followers. It has resulted in a resignation to, or an abdication in favor of, pupils' whims, both as to what is included in, and excluded from, school work. We shall presently see, in connection with the discussion of the project method (see Chapter V) that a wholesome improvement is possible in the work of the schoolroom on the theory that "education is life," and that it may be freed from much of its artificiality by a program that plans to make as much as possible of school activity similar to real-life activity. But this is far from identifying real-life interests with childish whims, and spasmodic likes and dislikes of the moment. The most ingenious teacher or curriculum-maker will easily give up in despair if he must find childish interests to attach certain items of learning to, which the real world values highly and

[1] Dewey, John, *Democracy and Education*, chapter x.

will value still more highly. The solution of that difficulty by abandoning the attempt altogether may make school work easier and more agreeable for both teacher and learner, but will not serve the best "interests" of the child. Many teachers, if they were to adopt such a doctrine of interest, would have to abandon a considerable part even of those items curriculum-makers have set down, in their most drastic revisions, as "minimal essentials."

**The curriculum-maker's problem.** This situation raises the whole question as to the relation of curriculum making, child psychology, and teaching technique. Because of the present prominence of the first of these three, the relationship of these different fields of education, especially the question of priority, is an important one. By priority we mean, Which of the three should be settled first? or, Can they be settled simultaneously? The curriculum-maker's special problem is, "*What* shall we teach?" The teacher's special problem is, "*How* shall we teach?" The child is an intermediate factor. Shall the curriculum-maker settle his problem on the basis of social needs, or must he consult the child's interests and capacities, and those at different levels of development?

This depends somewhat on our conception of the curriculum-maker's work. We may admit the more extended view, that he must not only select, but that he must also arrange and grade the material of the course of study. But the question still remains, "Shall he *select* his *total* content on the basis of social needs alone, or on the basis of those needs and the child's interests also?" It is evident that the child's capacities and interests must be consulted in grading the material, if this can at all be done. But dare we include any items for which the child's interest cannot be assumed, for which, in fact, a lack of interest in the average child is a far more reasonable assumption? Dare we omit such items if

social needs imperatively dictate their inclusion in the course of study?

**Intrinsic and extrinsic interest.** Does not this predicament pass along the problem of "interesting" pupils in such items as the chief function and problem of teaching technique? Or does this impose an impossible task? Dewey declares it is practically impossible to "interest" by extrinsic means.[1] Most psychologists have taken a different position, and have argued the matter in a practical way by reference to three types of attention, primary passive, active or voluntary, and secondary passive attention.[2] It is the interest involved in the last of these that we must especially use as an effective agency in study.

The approach to secondary passive attention may be made through either of the other two forms, and such motivation involves appeals to extrinsic interests, or interests not immediately found in the content or subject-matter itself. The latter is the intrinsic interest which must be our ultimate goal in study and teaching. Extrinsic interests involve appeals to instincts such as pride, or rivalry, or approval, desires for reward, or fear of punishment. Whether interest snared by such devices results in efficient, permanent learning values, is also a matter of controversy. But, as there is no experimental disproof of this, we shall probably be compelled to go on utilizing extrinsic motivation, if our experience shows we can command working attention by it.

If it is impossible to make tasks or topics or problems interesting that are initially uninteresting to children, the curriculum-maker will have to change his point of view from social needs to children's interests. The teacher will have to abandon the attempt to deal with any topics or materials that do not command immediate and spontaneous attention

[1] In *Democracy and Education*, page 148 f.

[2] Compare, for example, Colvin, S. S., *The Learning Process*, chapter XIX

from the pupils. This is clearly impractical in school work, at least for the present.

**A working doctrine of interest.** A working doctrine of interest, as it affects the problem of motivating the attention of pupils in their study activities, may be summarized, from the foregoing discussion, in a series of propositions.

1. Some interests need not be aroused. These are in a sense innate and universal. Attention is arrested by certain phenomena, and this compulsory type of interest has been identified in psychological nomenclature as being in the nature of "passive attention."

2. We must be very careful to conserve worthy natural interests. The child comes into the schoolroom with an embarrassing bundle of interests. Many of these are instinctive. Others are unique, but still either specially inherited or developed so early and fully that we cannot distinguish the strong, acquired from the innate. A few of these may be pernicious; most of them will be helpful. All must be met with the greatest tact and thoughtfulness. Some may have to be wisely side-tracked. More may be guided and directed into useful channels. A single, strong, worthy, special interest in a child may be made a center for motivating a great part or all of the school activities. Suppression and opposition should never be based merely on the inconvenience of such an interest in the schoolroom, if the interest is at all worthy. The greatest ingenuity should be used to utilize it and direct it to educational ends.

3. Most persons can be interested in most things. By Providence, or whatever name we choose to give to the constituting force of the universe, persons and things seem to be so made that the bond of advantage or use can be recognized, if we can but overcome a momentary diffidence or reluctance or inertia in our minds. If we will but cross the threshold the house and its occupants will charm us. Psy-

chologists introduce two other forms of attention here to describe the mental phenomena involved, voluntary or active attention, and secondary passive attention. These mental analyses are perhaps among the most useful education has drawn from mental science.

4. Interests are classified as intrinsic or extrinsic. Whenever possible, intrinsic interest should be given the preference to motivate attention; but, corollary to this, extrinsic interest should be resorted to to overcome the initial reluctance to giving attention to elements which society judges of value for the immature.

**Thorndike's evaluation of learning-process factors.** Professor Thorndike has given us a helpful summary and a critical evaluation of the important factors involved in "improvement" in any learning process.[1] Seven factors are named: (1) Interest in the work; (2) Interest in improvement; (3) Significance; (4) The problem-attitude; (5) Attentiveness; (6) The absence of irrelevant emotional excitement; and (7) The absence of worry.[2]

Experimental data are given to prove the fact of the first two.[3] The next three are evaluated in the following paragraph: —

> The three remaining doctrines of the "interest series," I need only mention. The doctrine so brilliantly and earnestly defended by Dewey, that school work must be so arranged as to arouse the problem-attitude — to make the pupil feel needs and work definitely to satisfy these — would probably be accepted by all, at least to the extent of agreement that pupils will progress much faster if they do approach work with needs which its accomplishment satisfies, and with problems whose solutions its accomplishment provides. The general principle of modern educational theory that school tasks must be significant at the time to those doing them — that a pupil must have some aim in work to give his work

[1] Thorndike, E. L., *Educational Psychology*, vol. II, pages 217–30.
[2] *Ibid.*, page 226. [3] *Ibid.*, pages 217–25.

meaning — would also probably be accepted by all, at least to the extent of belief that pupils will improve faster in work the nature and purport of which they comprehend, than in mere serial intellectual gyrations accomplished slavishly and mechanically. Most orthodox of all is the doctrine that the attentive exercise of a function will produce more rapid improvement than exercise of it with attention directed elsewhere.[1]

Of the last two factors, Professor Thorndike says they "would perhaps be disputed." After reviewing the arguments with reference to the value of "emotional excitement" as a factor in promoting learning, he comes to the following conclusion:

All the facts concerning the relation of emotional excitement to improvement therefore seem to be explained best by supposing that the interest in the function's exercise and improvement is the active force — emotional excitements being indirectly of value if they produce interest, and of value as symbols in so far as they are produced by it. They probably do not produce effective interest so often as has been supposed, the dynamic power of each emotion over behavior being able to exist without the crude inner excitements. When without them, the interest is less tiring and distracting, and so more efficient.[2]

With reference to the last of these factors, worry, he arrives at the following conclusion:

Much the same sort of arguments could be reviewed in the case of worry or tension. Other things being equal, tension or worry simply wastes energy and distracts the mind, offering so much friction to overcome. Zeal, satisfaction at success and annoyance at errors, can be present with a relieved state of mind as well as with one wrought up to tension by emulation, dread of failure and the like; better, in fact. . . . Active mental life in the prosecution of intellect, morality, and skill can go on with no greater excitement than its own progress provides and with no greater tensions than the cheerful alertness of quiet interest. Emotional peace and relaxation seem indeed, as I interpret the facts of behavior, to be, in and of themselves, always favorable to improvement.[3]

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[1] Thorndike, E. L., *Educational Psychology*, vol. II, pages 225–26.
[2] *Ibid.*, pages 225–26.
[3] *Ibid.*, page 229.

## PROBLEMS FOR FURTHER STUDY

1. Does "study" include the exercise of creative *imagination?* Would you say a poet, a novelist, a musical composer, or an artist is "studying" when he is engaged in creating an artistic masterpiece, especially, as in the case of the poet or novelist, if the creative work is a bit of free "fancy"?
2. Write a list, after thoughtful introspection and analysis, of just what you do when you "study." Do this from the point of view of the mental operations involved. Then make the analysis from a "behavioristic" point of view.
3. Make a more critical study of Whipple's "Rules for Study." [1] Think of them in the light of such questions as the following:—Which, if any, do you consider superfluous? Which would you emphasize on the basis of your own experience? Should these rules be "graded"; that is, would some be more applicable or appropriate for elementary school, high school, or university students? Which could you use as goals for teaching pupils the technique of study? Do you know whether any of these rules have been quite well established by careful experimentation? Do you consider any of them could not be determined by the experimental method?
4. Formulate a list of the "methods" of study you feel you have acquired in your experiences as a student. Does any of these methods have a history? Can you tell how and when you acquired it?
5. Do you recall any particular teacher who distinctively contributed to your efficiency as a student? Write a detailed account of this service. Do not confuse this training in study technique, with "inspirations."
6. Select a particular "study" problem. Outline the "technique" you propose to follow in your attack.

## TEST AND STUDY-GUIDE FOR CHAPTER

### I. ENUMERATION

(2 points each = 14)

Name seven distinct types of "study."

1.
2.
3.
4.
5.
6.
7.

[1] In his *How to Study Effectively*.

## II. ENUMERATION

(2 points each = 12)

Name six distinct forms of "reading" as a phase of study.

1.

2.

3.

4.

5.

6.

## III. ENUMERATION

(2 points each = 8)

Name Robinson's "types of thinking."

1.

2.

3.

4.

## IV. ENUMERATION

(2 points each = 8)

State four characteristics of scientific observation.

1.

2.

3.

4.

## V. ENUMERATION

(2 points each = 8)

Name the four essential activities involved in supervised study as a classroom method.

1.

2.

3.

4

## VI. COMPLETION

(2 points each = 30)

Fill in each of the blanks in the following sentences with a single word.

1. Supervised study may be called ..... study. The teacher gives very definite directions as to ..... ....., and ..... of work, and makes ..... examination of the work of ..... students without interfering with the ..... study of all others.
2. Supervised study is possible under two very different conditions. It may be installed in its most complete form by ..... arrangements within a school or system, or it may be used as a ..... for ..... in a particular classroom.
3. The acquisition of ....., ....., and ..... is now prominently emphasized among educational objectives. In the acquisition of some of these, the necessary knowledge involved is thought of as ..... and of ..... value.

## VII. RIGHT AND WRONG

(2 points each = 20)

Indicate, by writing "R" or "W" before each of the following statements, whether it is "Right" or "Wrong."

1. An assignment should consist of a bare statement of the limits of the advance lesson.
2. Only such materials as naturally interest a child should be presented in school work.
3. The curriculum-maker should settle his problems of selecting subject matter on the basis of social needs.
4. The teacher should never appeal to extrinsic interests.
5. Intrinsic interest should, if possible, be given the preference over extrinsic interest as a form of study motivation.
6. Most pupils can be interested in most things.
7. Attentive exercise of a function will produce more rapid improvement than exercise of it with attention directed elsewhere.
8. In reading, a pupil should never be encouraged to skim hurriedly over a passage.
9. Increasing the rate of reading usually increases the comprehension.
10. In committing to memory, it is better to read silently than to read aloud; and better to read slowly than to read rapidly.

## PARALLEL READINGS

Bagley, W. C. *The Educative Process.* Chapter XXI on the Assignment.
Colvin, S. S. *An Introduction to High School Teaching,* chapter XVII.
Earhart, Lida B. *Types of Teaching.* Chapter XIV on "Training Pupils to Study," and chapter VIII on the Assignment.
Foster, H. H. *Principles of Teaching in Secondary Education,* chapter XII.
Hall-Quest, A. L. *Supervised Study.* The standard general discussion, with chapters on specific application to the leading school subjects.
Miller, H. L. *Directing Study;* especially chapters II and IV.
Parker, S. C. *Methods of Teaching in High Schools,* chapters IX and XVI.
Strayer, G. D. *Brief Course in the Teaching Process,* chapter VIII.
Whipple, G. M. *How to Study Effectively.*

# CHAPTER V

## THE PROJECT AND THE PROBLEM METHODS

1. What the project method is — Why it is developing — Its evolution — Origin of the term — Relation of the project to the problem — An illustration to distinguish the terms — Definition of the project method — Illustrations of "projects" in English work — Analyzing out the needed skills and habits — Projects for a course in English "Expression" — Projects in the work in "Literature" — Objectivity in "Methods of Study" — The objectives in "Appreciation."
2. What the project method is not — Not an individualistic school exercise — Or an extended unified piece of study — The so-called "play-project" — Self-initiated activity not a project — Nor extreme, unconventional forms of activity — Not vicarious living-over of others' problems — Not curriculum reorganizations.
3. Limitations of the project method — In teaching history — In reading — An eighth-grade history lesson — In geography — In other subjects.
4. The problem method — What this method is — Steps in problem-solving — Another name for scientific method — Steps in using — Problems and projects may be for groups, or individuals — The project lesson plan.

Test and study-guide for chapter — Parallel readings.

### *1. What the project method is*

**Why the project method is developing.** Dr. Cubberley, in discussing the newer conceptions of educational work,[1] points out that, among other recent changes in school work, "the commercial and industrial life of the community began to be utilized to give point to the instruction in manual training, local history, civics, geography, and other related studies." In the same connection he refers to a similar regard for social and civic needs.

This movement has hitherto found larger expression in the content of the school work than in the method. These

[1] *Public Education in the United States*, page 367.

new conceptions are revolutionizing the material of the curriculum, are introducing all sorts of new subject-matter, are eliminating much of the dead-wood in the conventional "subjects," and are rapidly changing the emphasis on a great variety of topics.

It remains to instill this same spirit into method, as well as into materials. The project method is destined to go far in modifying teaching practices, because it offers the means of adjusting the learning to the newer subject-matter and the more vital needs of real life.

This suggests lining up our methods with the keynote of Dewey's philosophy of the relations of school and society. As expressed in the same connection, we may again quote Dr. Cubberley's brief summary of the Dewey point of view.

> The school . . . began to change from that of a place where children prepare for life, by learning certain traditional things, to a place where children live life and are daily brought into contact with such real industrial, social, community, and life experiences as will best prepare them for the harder problems of living which lie just ahead.[1]

It would seem reasonable enough that this aim can best be attained by change in method, as well as in materials. In fact, it would seem impossible of attainment without method that does not approach real-life activities. Real-life activities, as a substitute for academic exercises, are introduced for a double purpose — the stimulation of interest in the real-life activities themselves, and the building of habits for immediate use outside, as well as within the school, and for the future as well as for the present.

When this spirit is incorporated into the teacher's technique, we are likely to find activities and materials that will justify our calling such work teaching by either the problem or the project method. The recent introduction of these

[1] *Public Education in the United States*, pages 367–68.

methods has been met with a great deal of enthusiasm, some confusion and controversy, and some excesses.

In order to show the meaning of the project method in its restricted and unrestricted usages, and to show its relation to the problem method (one of the more violent phases of the controversy), we may attempt to trace its evolution from other methods and from certain related movements outside the field of methods.

**Evolution of the project method.** In Chapter III we saw how, during the last generation, the inductive development method practically dominated the schoolroom practice of trained teachers, while the recitation on textbooks was the easy refuge of the inexperienced.

Out of the inductive lesson plan there evolved a teaching philosophy that included one item which is an important feature of the project method, the idea that every lesson must have a clear aim or purpose, in the mind of both teacher and pupil. How this "purposefulness" has been extended and emphasized by the project advocates will be shown when we take up a discussion of the definition of "project."

The other important element in project teaching is "real-life" activity, as much like the natural acts of the outside world as we can make activity in the more or less artificial setting of the schoolroom. This element gained prominence, during the last generation, through two simultaneous and rather independent movements in education. One of these was the educational philosophy of John Dewey; the other the manual training and vocational instruction movement. That part of Dewey's creed which is most closely connected with the project method development is his insistence that school must be thought of "as life, not as a preparation for life." We have already shown (page 43) that the negative side of this statement is to be taken as the natural exaggeration of the reformer, a protest against an extreme academic

disregard of the child's present-day needs and interests. The worth of the positive side of this philosophy, and its rapidly growing acceptance among teachers and educational leaders, is shown as clearly by the wide spread of the project method as by any other school practice of the present time. Ready agreement and thoughtful effort are being made on every hand to introduce "real-life" attitudes and activities into the work of the schoolroom.

**Origin of the term.** The term "project" itself came into general use and application from the manual training and vocational training activities. These subjects imported the word into the public schools. An extended constructive or experimental undertaking, which involved careful preliminary planning and the statement of an aim or purpose, often in the form of an exact drawing or blue-print, had come to be spoken of as a "project" by engineers, scientific agriculturists, and the like. Manual training teachers came to use the term for the individual constructive undertakings of their pupils. Such undertakings had the two essential characteristics which every project should have in any field of study where an attempt is made to vitalize teaching by the methods of the workshop or field work. These were: (1) the clear, definite purpose; (2) a genuine real-life activity.

Another element which is a common characteristic, though not an essential one, in the project method was probably taken over from the supervised-study movement. This is the idea of the *large unit* of individual, self-directed learning. The significance of this will be seen presently when we come to discuss the topic, "What the Project Method is Not."

**Relation of the project to the problem.** One other element that has played a most significant part in the evolution of the project method is the relation of "project" to "problem." It has already been stated that this is a prominent

center in the controversy about the new method, the controversy hinging about whether one or the other of these terms is generic or specific. Attempts at definition of the two synonyms have been rather fruitless when attempted on the etymological basis, for one is derived from Greek and the other from Latin words meaning exactly the same thing.

It is advocated here that the best interests of teaching practice would be promoted if we could come to use the project method in its more restricted sense; use "problem" as the generic, and "project" as the specific term; and use the problem method for certain forms of school activity, and the project method for others. It is believed that we will ultimately have to come to this, both from the history of the use of these words in non-educational activities, and for the sake of clearing up a confusion about the meaning of "projects" that is resulting in the introduction of certain activities in the schoolroom that border on the ridiculous. The fact that many of these practices are designated as projects by those who perpetrate them may result in the discrediting of any kind of "project." This would be a serious loss to the development of teaching technique, for there is one type of project which involves rare and wholesome possibilities for the improvement of school work.

**An illustration to distinguish the terms.** An illustration may be given to justify the claim that all problems are not projects, and that "problem" should probably be thought of as the generic term. Problem-solving can be done on various planes. These planes may first be stated abstractly, and then be illustrated.

1. Some problems may be solved on a strictly *mental* plane; such problems are contemplative, reflective, academic, suppositious. Perhaps a subdivision of such problems might be thought of as vicarious, reconstructive, imaginative.
2. Some problems may be solved in a *symbolical* way. Some

mode of expression must be used, such as speech, written language, drawing, modeling, etc.

3. Some problems may be solved in the realm of the *real*, the material, the physical, the practical. For this type of problem-solving we ought to reserve the term "project method." The chief educational argument for this is that this type of problem-solving has been too long kept out of the schools. Problem-solving in the classroom has been too exclusively mental and symbolical.

Now let us see how a particular problem might be solved successively on each of these three planes — mental, symbolical, real. Let us suppose a man is planning the building of a house. He may construct the general plan and most of the detail, and compute his approximate costs almost entirely on the *mental* plane. He may imagine and reason out his floor plan, and the dimensions of the rooms and their relation to one another. A part of this mental process may be a critical reconstruction of several of his neighbors' houses; he may solve his own problem by vicariously re-solving theirs, — "if I had been in his place, I would have done so and so," he reasons or supposes.

Out of this mental solution he may, and usually does, soon proceed to the *symbolical* plane. He makes a rough sketch, and then a dimension drawing; he puts down specifications in words; he computes costs in actual figures instead of rough estimates. If his problem is an expensive and important one, and if he is not experienced in the matter, he takes his crude sketch and estimates and specifications to an architect. Except when he assumes the work of a contractor or superintendent, the architect's solutions of house-building problems are all carried out on the symbolical plane. The symbolical solution is usually superior in accuracy and efficiency to the purely mental; all symbols were invented by man for that purpose. An expert plan now shows the house-builder how a door here, a window there, and the dimensions

of a closet, as he had mentally placed them, are not feasible.

The third phase of the house-building problem is the *real* construction. Its superiority over the second is much greater even than the superiority of the second over the first plane of solution. We are not thinking here of the matter of use, but merely as a solution of the problems involved. Defects in the solution, which even an expert's symbolical solution had not foreseen, now become apparent. And a house-builder often comes away from such an enterprise with the thought, "If I ever had to build another house, I would never do this or that."

From the illustration it must be apparent that there are hosts of problems — for example, the vicarious living over of the experiences of others in history — which cannot even be raised to the symbolical plane of solution. They must remain in the mental realm, in imagination and reason. Others can never pass for solution beyond the symbolical plane. Such is much of the problem material in geography. Real solutions are open only in projects of travel, or creation.

But where problem-solution can be raised to the plane of reality we have the only final and true solution — the project method. There are many problems that cannot be approached on the project plane, owing to the artificial conditions necessary to the schoolroom. This artificiality means unlikeness to real-life outside, a condition which is more or less inevitable for organized mass education.

**Definitions of the project method.** The literature dealing with the project method, already extensive and growing rapidly, treats largely of three topics: (1) Efforts at definition, many of them comparative and controversial; (2) Accounts of a variety of unique teaching experiments, some worthy and some ridiculous, which are described as projects; and (3) Efforts to work out project programs for the various school subjects.

ASSIGNMENT: Glance through several of the references given in a bibliography on the project method and classify them as indicated above, or suggest other divisions to the classification, if you think necessary.

The first formal attempt to launch the project method was made by Dr. Kilpatrick, of Columbia.[1] In this article the first systematic definition was given. The project was defined as "a whole-hearted, purposeful activity proceeding in a social environment, or more briefly in the unit element of such activity, the hearty, purposeful act." This definition may be interpreted as containing the two essential features of a project in the restricted sense we are trying to insist on as advisable — the "purposefulness" and the "real-life activity" — although it must be admitted that the second of these essentials is expressed in a most abstract form, so much so that it has been lost sight of or abandoned by some of Kilpatrick's more ardent followers. The result has been that any "purposeful" school activity has been included by them in the project method.

A more accurate and satisfactory definition has been advanced by Stevenson.[2] His definition is: — "A project is a problematic act carried to completion in its natural setting." This definition has some advantage in relating project teaching to problem-solving, although the word "problematic" is unfortunate in that it is commonly thought of as synonymous with "questionable, uncertain, unsettled, doubtful." Taken in its context in his book, however, it is clearly seen as a convenient substitute for the phrase, "involving a problem." The latter part of the definition has a distinct advantage in clearness over Kilpatrick's definition. Ste-

[1] In an article in *Teachers' College Record*, vol. XIX, no. 4 (September, 1918).

[2] In his book, *The Project Method of Teaching* (1922). This book is quite the most consistent and balanced discussion of the method.

venson's advantage in his discussion of the project method lies in that he approached the matter from the point of view of the project in the teaching of agriculture — its original, uncorrupted setting. However, when he extends his illustrations to the field of the more academic subjects, he too fails to discriminate between symbolical problem-solving and solutions in "a natural setting," which has otherwise been quite clearly adhered to as a "real-lifelike" activity solution.

Other definitions of the project method might be introduced, some accurate, others very loose. Definitions have been attempted in the *Journal of Educational Method* which make the "project method" comprehensive enough to embrace all educational activity, such as administration, curriculum-making, child psychology, etc. It is perhaps less confusing and more helpful to try to adhere to the interpretation of the "project method" as a method of classroom instruction, even though we recognize that method may involve implications for the curriculum and child study, and *vice versa*. One's educational philosophy must be involved in the discussion of what to teach, and how to teach, and why, and when. The clearest solution of these questions can only come by considering them first as separately and as distinctly as possible, and then considering problems of reciprocal relationship and implication.

From the point of view of a strict interpretation we may then, from the foregoing discussion, adopt the following as a working definition: *A project is a definite and clearly purposeful task, and one that we can set before a pupil as seeming to him vitally worth while, because it approximates a genuine activity such as men are engaged in in real life.* The project method is the solution of *problems*, on the *real* plane of activity.

**Illustrations of "projects" in English work.** The signifi-

cance of the elements in this definition can perhaps be brought out best by illustrations in English work in the upper grades and the high school. The distinctions will be clarified and the values of the method emphasized by using this subject, because it is perhaps most open to reform from the artificial, academic traditions.

English lends itself readily to the use of the project method. The Committee on the Reorganization of English in Secondary Schools has pointed this out. They say: [1]

> The subject-matter of English consists primarily of activities, not of information. It provides a means for the development of ideals, attitudes, skill, and habits rather than for the acquisition of a knowledge of facts and principles. That is to say, English as a high school study is to be regarded primarily as an art, not as a science, and is to be learned by practice rather than by generalization.

But this is far from the common view and practice of English teachers. Grammar is "learned" as a science. Textbooks on rhetoric are treated as "content" material. Literature is studied and tested as fact-cramming for college entrance examinations. So much of the literary study is "about" the classics and their authors — so little "of" the book itself.

**Analyzing out the needed skills and habits.** Emphasis should be put on skills and habits, especially on the latter in composition work.

The great problem is to have the school activities by which these habits are formed as far removed as possible from artificial, academic exercises for drill, and as nearly as possible like the genuine real-life activities they are intended to provide for.

In literature the emphasis will be directed toward atti-

[1] *The Reorganization of English in Secondary Schools*, United States Bureau of Education, Bulletin no. 2 (1917), page 33.

tudes, habits, and ideals. The last is to be a by-product from the content. Habits of reading, and of good reading, will be developed by the real-life activities. Attitudes toward good, bad, and indifferent art can also best be developed as by-products of activities in selection, sampling, and criticism.

The problem then would seem to become one of stating definitely and concretely the projects or enterprises we should undertake that will give training in the activities the high-school student needs now for efficiency in all his school work, and will need for efficiency in his later and larger practical and social environment, as well as training in the literary activities that will enrich and inspire his life now and that will form tastes for a rich leisure occupation after school days are ended.

When we have built up a list of such essential activities, the processes involved will find their functional place. So, for example, with the rules of grammar and the principles of rhetoric. In the end we shall have a useless residue of material found in the logical organization of the technique that may be quietly left to atrophy in appendixes. In the case of literature we will have left aside the burdensome barriers of introductions, and the hurdles in the footnotes and glossaries. We will have kept the pupil in contact with the thought and feeling of the masterpiece, by virtue of which it has lived, and will have left the study of technique and form to their proper place in the university training of specialists.

**Projects for a course in English "Expression."** In line with this point of view the following tentative list of "projects" for a high-school course in English is presented. The projects are expressed from the point of view of the teacher, rather than that of the student. At the close of the list a practical mode of attack is suggested in planning the work with any particular project.

1. Students should know how to write a business letter, "in good form" in every detail.
2. The same for a "friendship" letter.
3. Students should know the difference in "spirit" between the two.
4. Students should know, before graduation from high school, how to preside at a public meeting, and how to dispose of the more common parliamentary exigencies.
5. Students should know how to take part in a public meeting to the extent of:
   a. Making and seconding motions.
   b. Amending a motion.
   c. The formality of securing the floor.
   d. Raising a point of order and why.
   e. Raising a point of information and why.
   f. Calling for the question.
   g. Making a committee report.
   h. Presenting a formal resolution.
   i. Keeping minutes for a meeting.
   j. Making motions to table, or to adjourn.
   k. How to formulate an "order of business" for a meeting.
6. Students should know the "art of definition."
7. Students should know how to take systematic notes on a lecture, and to report orally on such notes.
8. Every high-school graduate should understand thoroughly the method and values of some systematic scheme (not too detailed) of outlining, with the principles of coördination and subordination.
9. He should know a system for collecting material on an extended topic.
10. He should be able to make a free, natural, orderly-arranged ten-minute speech, on short notice, on any topic with which he is familiar.
11. He should be conscious of the need of extending his vocabulary, and know how to do it.
12. He should be able to write an "acceptable" news item of a half-column or so.
13. He should be able to tabulate and to graph a statistical table of social data.
14. He should have a "sense" of the paragraph. (Associate with Project no. 8 above.)

15. He should be able to spell, with at least ninety per cent accuracy, the 3000 most common English words.
16. He should be able to write and speak without violating the "most-common-errors" list.
17. He should be able to apply the most common rules of punctuation.
18. He should have a live interest in current events and present-day problems of citizenship. This is as much the function of the English course as of courses in American History and Civics. The student should be taught in the English course how to satisfy his interest efficiently, and how to make it function in action. How this is to be done is indicated more fully in the list of projects in "Literature."

**Projects in the work in "Literature."** We may plan to carry out this work in two phases:

I. The conscious development of *Methods of Study.*
II. The usual required work in the *Development of Appreciation* of good literature, or of:
   a. Habits of good reading.
   b. Interests.
   c. Ideals.

The first phase will in many instances appear "incidentally" in both the "Appreciation" and the "Expression" work.

**Objectives in "Methods of Study."** Before graduation from the high school, students should have a clear, conscious technique of study, that is, they should be able to use at will certain methods of procedure in getting information about, or for the efficient mastery of, a definite topic or problem for a definite school or life purpose. Such technique of study should include:

1. The method of "skimming."
2. The method of a single attentive reading.
3. The method of outline or analysis.
4. The method of comparison, collation, and weighing of authorities or sources of information.

5. The method of bibliography, the independent finding of materials.
6. The method of "scenting" and stating a problem.
7. The method of formulating and testing a hypothesis; an introduction to problem-solving.
8. The method of concrete illustration, that is, of deduction or applying a principle.
9. The method of using a book by index, table of contents, etc.
10. The method of learning public opinion.
11. The method of independent thinking, that is, of challenging the authority of "printers' ink."

**The objectives in "Appreciation."** These may be stated as the following:

1. The graduate of a high school should know how to read a newspaper intelligently and appreciatively.
2. He should know what the newspapers of his environment stand for, their point of view.
3. He should know the relative characteristics, merits, and defects of a half-dozen leading periodicals dealing with current events.
4. He should know the one best magazine, or several, that deal with his special interest.
5. He should know the merits and demerits of a half-dozen "populars," used for "harmless enjoyment."
6. He should have a standard of "good or bad" judgments about movies.
7. He should know the reasons for the difference between "popular" and "meritorious" current fiction and fiction writers.
8. He should know why certain "classical" authors have survived, why they should challenge his interest, and the "social" values of familiarity with them.
9. He should know how to use a library.
   a. An accessible collection, reference library, or open stacks.
   b. A closed stack room, accessible only through a catalogue or a card index.

ASSIGNMENT: Make a list of ten problems that are adapted to the project method of teaching, as here defined, in some other elementary or high-school subjects, outside of home economics, agriculture, or any of the manual arts.

*2. What the project method is not*

A variety of school activities are being designated as "project" teaching which should not be so called. This does not imply at all that such activities are undesirable. Some are as worthy and educative as the project method itself, and should be conserved or extended. A few are not desirable. Some of these activities probably inadvisably called projects may be reviewed, with reasons for their not being so designated.

**The project not merely an individualistic school exercise.** The adaptation of school work to individual abilities, needs, and interests is as important in the progress of education as any movement that could be named. Even if a teacher has pupils working individually, by the textbook, with collateral, or under the supervised-study plan, while it may be a big undertaking to her — a "project" in the sense that an engineer or a real-estate promoter uses the term — it does not necessarily follow that the individual pupil's work is clearly "purposeful" to him, and if he is carrying on his work by any of the above methods there is probably very little of "real-life" activity involved in it.

**The project not even any extended, unified piece of study.** The course of study is undergoing radical alterations, at least in the discussions of curriculum reformers, and, no doubt, some of the important changes proposed will be coming in sooner or later. These proposed revisions are largely along two lines:

1. Revisions *within* subjects, by eliminations, additions, and substitutions;

2. Rearrangements or coördinations *between* subjects — cross-sections of materials from geography, history, civics, language, and reading are being collected around new unities, some natural, others artificial.

The introduction of such new divisions of work is also often called a "project,"[1] though such reorganization may also fall short of meeting either or both our criteria of the true project. Often the "purposefulness" is more apparent, the reorganization and coördination being around more natural centers of pupil interests and pupil needs; but, while this one criterion may be fairly met, and although such topics cover a wide range, the term "project" should be applied only if the learning is carried on in connection with a "real-life" activity.

**The so-called "play-project."** There is even closer approach to the true project in an extension of the above form, where the learning is carried on in the realm of play. But even a learning process, involving a considerable unit of related material, and made fascinatingly "purposeful" through play activities, should not be unqualifiedly designated a project. We might well call such an activity a "play-project." Why insist on such close discrimination? Play is indeed the child's life, his "real-life" activity, but we ought to look at the matter against a broader background. Play is a symbol, a pretense of work, an imitation of "the genuine activity men are engaged in in real life."

An illustration may serve to clarify the distinction. A child may learn valuable lessons in making a toy sled, or a wagon from paper — lessons of muscular control and coördination, of measurement, of mechanical relationships, even of elementary geometry in the making of wheels that will turn true. The whole exercise can rise to higher and more valuable processes and learning experiences the nearer it comes to making a real sled or cart — real in materials, dimensions, and usefulness. The paper model or toy is clearly a symbol; the dividing line between the "play-project" and the real

[1] See Bonser, F. G., *The Elementary-School Curriculum.* Macmillan, 1921.

project must be, in this case, the criterion of *use*. In other instances the dividing line between symbolical and real activity might be quite imaginary and hard to draw.

Again, it must be clear that, although we would do better not to call a play activity, whether individual or a coöperative group activity, a "project," no prejudice or criticism is implied against the spirit or method of play as a useful factor in learning. "Play-projects" may even make a more interesting appeal to the child at certain levels than do work-projects — may appear far more "purposeful," and may even involve more necessary and efficient learning.

**Self-initiated activity not a "project."** The term "project" should not be loosely applied to any self-initiated activity of the child. This is often done by kindergarten and primary teachers, and there is perhaps more danger of discrediting the whole project method here than from any other form of enthusiasm. Spontaneity, self-direction, initiative, and exploration are all worthy attitudes to be developed, especially in children in the earlier school levels. The child, though, makes many false starts in his spontaneous activities, and if every bit of self-initiation is to be hallowed by encouragement because it is mistakenly conceived of as a "project," because it is "purposeful," the teacher may build up a sanction for lawlessness and chaos.

Free play, for example, may accidentally call three blocks of wood a train, but, seizing on the accidental whim to develop a transcontinental system of transportation that requires the whole room for its orientation and all the available material for towns and termini, with all the rest of the children mere inhabitants of some way-station, is neither good teaching nor good learning. If such teaching is to be called project teaching it were better to abandon it at once.

**"Projects" not extreme, unconventional forms of activity.** Any extreme form of this undirected and uncontrolled spon-

taneity, running under the guise of "project method," is still more objectionable. It is possible to find teachers, in some of the larger systems over which the project movement has swept as a "fad," to be doing all sorts of informal, unconventional things in the schoolroom, without having any sound educational basis for such practices, and justifying their vagaries by boasting of their "projects." This unthinking type has endangered many a hopeful, progressive innovation. It is largely because the project method holds such large possibilities, if wisely restricted and definitely defined, that it seems regrettable that some of its leading advocates should indulge in vague, abstract generalities. It seems most unwise that an effort should be made to glorify an innovation in schoolroom methods into a revolutionizing movement by dragging into it all educational problems to the confusion of well-intentioned teachers.

It is unfortunate, too, that the *Journal of Educational Method* should have been so called instead of the *Journal of Educational Methods.* The project method is not the only method, or all of method. The Herbartians made the same mistake of abstraction. There is a variety of general methods, and we have reached a stage in teaching technique when the professionally trained teacher is eclectic in her methods. She knows one type of work will best serve her pupils' learning in one subject, and another in another, or she changes from method to method in dealing with different topics of the same subject, or in dealing with pupils of varying abilities.

**Not vicarious living-over of others' problems.** One more type of school work that has wrongly been called project work must be noted. The project method should not be applied to the imaginative, vicarious living-over of others' problems, as in history, nor in the working out of reasoned solutions of type problems, as in geography. This type of

school activity has been styled project work by Charles McMurry in his book on *The Project Method.* The lesson suggestions outlined in this book are worthy, helpful class exercises, but they are merely the old inductive development-type lessons dressed over and given a new name. Some attain the level of what we might have styled the "problem method," if this method had ever had a fair chance to establish itself. It must be apparent, on a little reflection, that history is not at all suited to the project method, if we insist that the two criteria of "purposefulness" and "real-life activity" must both be met for true "projects." The solutions in history problems must all be on the purely mental plane, except possibly for the statesmen of the day in dealing with current history.

**Not curriculum reorganization.** The project does not necessarily involve curriculum reorganization. This question has already been opened above, on page 154, but must be examined more fully. Several of the most helpful books written in connection with the project method [1] take the necessity of this reorganization of the course of study for granted, and try to further both these school reforms by combining them. This is unfortunate and open to serious objections. It was pointed out above that curriculum reorganization is being conducted along two related lines, (1) reform *within* subjects, which we may call vertical reorganization, and (2) changes in related materials in *different* subjects, which may be called horizontal reorganization.

If wholesale changes are made in the latter way, there is bound to be a revision too radical for school administrators and teachers to meet. Curriculum reform will make its

[1] Bonser, F. G. *The Elementary-School Curriculum.* Macmillan, 1921.
Wells, *A Project Curriculum.* Lippincott, 1921.
Krackowizer, *Projects in the Primary Grades.* Lippincott, 1919.
Lull & Wilson, *The Redirection of High School Instruction.* Lippincott, 1921.

greatest progress if it is kept within the accepted divisions of subjects. The project method advocates have attempted too extensive changes in the curriculum on the horizontal plan. This puts the teacher using it, especially in departmentalized work, out of gear with all other parts of the course of study. Reform of this sort involves too many conflicts, repetitions, and, most serious of all, omissions in the conventionally-arranged courses with their subject divisions.

Moreover, curriculum revision is developing a highly scientific technique of its own, and presents such an extensive and important problem that it is engaging the work of trained specialists. The average teacher can coöperate with this reorganization of the course of study by suggestion, experimental application, and criticism, but she is not equal to the task of making important modifications individually. It may as well be recognized that "courses of study" are "handed down" to the teacher by her superintendent, or in county or state manuals, and that this is going to be necessary for many years to come in order to make a school system work as a system. Definite limitations for each grade have to be accepted, and an instructional organization within subjects must be followed.

This does not imply the impossibility of teaching by projects. "Purposefulness," practical motivation, and "real-life" activities can be introduced in the teaching of a particular topic in arithmetic, in language, or in most other subjects without going to the extreme of mixing up all related material in all other subjects. Project teaching would probably gain in definiteness if the problems involved could be reduced to a workable simplicity within the lines laid down by the present course of study.

ASSIGNMENT: Describe some lesson you have seen that was improperly designated a "project." Why was it so called, do you suppose? Why should it not have been so designated? What type of lesson was it really?

### *3. Limitations of the project method*

**In teaching history.** The idea has just been suggested that the study of history is poorly suited to the project method, if we are to insist on the criteria that have been included in our working definition. It must be admitted that history is largely an informational subject; one that can best be covered by wide reading associated with a fairly well mastered outline or core, usually gathered from a carefully condensed textbook. Helpful aid in this reading activity, pursued by the textbook and collateral methods, may be gained from the occasional use of other methods, such as object lessons, dramatic expression, topical recitation, drill, lectures, and discussions. Much of the material may be given helpful organization, especially in reviews, by the problem method. This last method will be taken up more fully in the next division of this chapter. The other methods will be dealt with in later chapters.

Aside from dramatization, which is merely play or "symbolical" solution, or possibly an excursion to nearby points of historical interest, which is merely a modification of the old Pestalozzian object and observation lesson, there is very little chance for any genuine *activity* in the study of history. This may be as unfortunate as it is true, and may be one reason why so little history really "sticks."

**Reading.** In this connection we may well scrutinize our working definition more closely. Is not reading, especially serious reading for clear understanding and more or less ready use in the solution of mental problems, a "real-life activity," and if it is pursued with the conscious or implied purpose, as in the case of history, of applying it to the understanding of current problems, is it not highly "purposeful"? Does it matter in the case of history whether the problem or purpose by which the reading is motivated be civic, politi-

cal, or cultural? It is just here that we have to justify our insistence on a strict construction of the project, or we have to yield to the confusion and indefiniteness that has been warned against.

To answer the problem we have to open the issue again whether the "school is life, or a preparation for life." Does not the issue lie in whether we can motivate the study, find a purpose for it, in the present, immediate needs of the reader, some real, not academic, problem that must be solved now, and can best be solved by a certain line of reading? May not the identical reading or study activities of two students be actuated by such different motives that one may be said to be taught by the project method, and another by some other method?

Let us suppose two pupils reading a particular chapter in a textbook on *Animal Husbandry*, one for the definite purpose of learning just what to do in a practical problem in real livestock feeding, the other for the purpose of passing a test the next day. There is absolutely no question here as to which form of motivation is "purposeful" in the truest sense of the word, or which is the more effective, or advisable, if either were possible as methods of teaching the subject.

**An eighth-grade history lesson.** Now let us return to our problem in the field of history. How can we motivate a lesson for an eighth-grade pupil in American history so as to make it truly "life," rather than a "preparation for life"? Can we do it on the civic or political plane? The eighth-grade child has no functional use for what he studies about the tariff or slavery, or even banking, as far as history is concerned. We shall see presently how it may be quite different in the field of community civics. In so far as the civic and political values can be recognized *for* the child (though hardly *by* him), his American history is all a "preparation for life." So it is on the cultural plane.

The illustration may be drawn still closer from the viewpoint of useful purpose. If the child has any functional "life" use for his American history it may possibly be found in his patriotic attitudes or activities, in the truest and worthiest sense of the term. Let us suppose he is studying Lincoln's fight on slavery as part of his preparation for a public Lincoln-Day program. Does this motive make his study activity a project? The line might be hard to draw here. If the program were a school exercise, the term "project" would not apply in the intention of the definition given. If it were a public program, if his part in it were like that of an adult orator before a real audience, the whole activity might well be called a "project." His speech on Lincoln might be quite as informing, as moving, as that of the adult. It must be evident, though, that the study of American history on this high plane of real use would rarely be feasible.

ASSIGNMENT: Try to formulate another "project" in American history, for an eighth-grade pupil, that would be equally "purposeful" and "real." Let several of the most plausible be criticized and discussed in class.

**In geography.** It has already been intimated that similar difficulties would be met if one were to attempt to teach geography by the project method. Sand-table and "yard" projects have been described in detail in some of the literature. Are not these "object lessons" wholly on the symbolical or play level of problem solution? Is there not, moreover, as much danger of misinterpretation of the realities of distance and material from the miniature topography as there is in a map or globe?

There are some topics in geography that might be attempted by the project method. The teaching of local geography offers the most likely field. Such problems as the getting of proper conceptions of direction, of distances, of areas, of the relation of maps to reality, of industries, or

of elements connected with local transportation could be worked out — with "realities." The activities should be carefully scrutinized, however, for it would be likely that the method in studying some of these might more properly be designated as belonging to the "object-lesson-observation" method to be discussed in Chapter VII. Field excursions would be more properly classified there than under the project method.

**In other subjects.** Illustrations might now be given of subjects in which the project method would be suitable and advisable generally, but where limitations would still have to be recognized in dealing with important topics.

*English* has already been cited as especially adapted to the project method. But in such an important phase of language work as the correcting of common-error habits, the simple drill method is best, and probably the only feasible method of learning. Although such drill has a worthy "purposefulness," the activity must be strictly academic. It may even be that better motivation can be secured by artificial devices of competition, games, rewards, and the like, than by an appeal to the more purposeful values of real life.

*Civics*, especially in its more recent form — reformed content as distinguished from the old course in civil government — is another school subject offering rich opportunities for true project teaching that should not be neglected. Many problems in community civics can be solved by children in the elementary grades, even by actual participation. The newer textbooks are rich in suggestions as to how school children can coöperate in sanitation or city beautifying campaigns; how they can be used as true molders of public opinion in times of elections. Mock trials, congresses, conventions, and elections pass from the real project to the play-project level. Trips to public buildings, improvements, or

legislative assemblies more properly belong to the "object-lesson-observation" type of method. The latter forms may be just as effective and are often more feasible than the project method. The experiences involved are highly worth while from the educative point of view. Some study of our national and state governments cannot be neglected, however, yet undertaking it as a true project is quite out of the question.

*Science teaching*, also, has important project possibilities in addition to, and distinct from, the object-lesson and laboratory methods now already in common use.

### *4. The problem method*

**What this method is.** Either as a phase of the project method, or as a clearly differentiated parallel type lying about midway between the inductive-development lesson and the project lesson, it will be worth while to develop the problem method. Its relation to these, in the historical growth of teaching technique, has already been noted. For our present purposes its distinction from these may be briefly restated. As related to the project method, which, as we have seen, involves a "problematic" act, we would do well to reserve the term "problem method" for teaching processes that deal with problems on the purely *mental* plane, or on that phase of the *symbolical* plane which we would not designate as "play projects." The problem method, as related to the inductive-development lesson, would deal with any mental problem not specifically involving induction or generalization from particulars. It would involve such reasoning processes as explaining cause from effect or effect from cause, or the reorganization of learned data to apply to new solutions in current needs.

Reference has also been made to the fact that the original suggestion for the problem method came from John Dewey,

especially in his book *How We Think*, and more specifically in Chapter VI of that book.

For convenience we may quote a concise synopsis of Dewey's plan from Strayer's *Brief Course in the Teaching Process* (pages 59–60):

> In the ordinary course of our thinking the sequence is as follows: We find ourselves in a situation which presents a problem which demands an adjustment; we make a guess or formulate an hypothesis which furnishes the basis for our work in attempting to solve the problem; we gather data in the light of the hypothesis assumed, which, through comparison and abstraction, leads us to believe our hypothesis correct or false; if the hypothesis seems justified by the data gathered, it is further tested or verified by an appeal to experience; that is, we endeavor to see whether our conclusion holds in all cases; if this test proves satisfactory, we generalize or define; and lastly this generalization or definition is used as a point of reference or truth to guide in later thinking or activity.
>
> There is danger that we may overlook the very great importance of *inference* in this process. We cannot say just when this step in the process will be possible, but it is possibly the most significant of all. A situation presents a problem. Our success in solving the problem depends upon our ability to infer from the facts at our command. Often many inferences will be necessary before we succeed in finding the one that will stand the test. Again with the problem in mind we may be conscious of a great lack of data and may postpone our inference while we collect the needed information. There is one fallacy that must be carefully guarded against in dealing with children, as also with adults; namely, the tendency once the inference has been made to admit only such data as are found to support this particular hypothesis.

It is evident from the last sentence that the term "inference" in the second paragraph is used as a synonym of hypothesis in the first.

**Steps in problem-solving.** The steps in problem-solving may be summarized as follows:

a. Recognition of the problem.
b. Formulating an hypothesis.

c. Gathering data and applying the hypothesis.
d. Further testing of accepted hypothesis.
e. Application of hypothesis as accepted.

These steps form a good outline of the main points in a lesson plan for the problem method.

Such analyses as that of Dewey's of the thinking processes are doing much to help us build up a conscious technique of study. The analysis of problem-solving becomes so clear that we can trace it step by step, train pupils in the conscious use of the method, and help them to make the use of such study technique more or less automatic — a habit of thinking.

It is, however, necessary for adequate problem-solving that we should have still more such analyses of different phases or types of thinking. A stimulating suggestion along this line has recently been made in Robinson's *The Mind in the Making*. The four kinds of thinking there given, with a brief explanation of each, have already been outlined in the previous chapter (see page 103 f.). His fourth type, that of "creative thinking," is closely allied to the "problem-solving" method.

**The problem method another name for scientific method.** It is apparent from the descriptions of the different types of thinking which were discussed in Chapter IV (pages 96–105), that when we speak of problem-solving, and the value of developing a conscious control of its technique, it is largely in the type of "creative thought" that we must seek worthy questions for study and discussion, with some possibility of finding worth-while material in the field of "practical decisions." It should also be said that in the context of his book Professor Robinson shows clearly that true problem-solving can only be attained by "scientific method" — the method used in the sciences. This follows closely the steps outlined in Dewey's scheme, and involves an emphasis

on several of the steps that we ought to notice. These are:

*a. Clear statement of the problem.* Problems cannot be selected at random and quite outside any related experience of the pupil. The best problems will be suggested by difficulties of the pupils in the work at hand, and will often be expressed by them. These will usually have to be restated by the teacher before they can be made the subject of study or class discussion. Out of her experience with the subject and grade she is teaching the teacher will gradually accumulate a considerable list. These should be carefully recorded and preserved for future use, together with helpful suggestions for their solution, such as sources of data that have been found helpful or interesting.

*b. Make the problem a constant, purposeful aim in all the work.* The greatest danger in working with the method of problem solving, whether on the mental plane or in the realities of a project, is that of losing sight of the main object of study. Much of the material in a reading problem will not immediately appear to be clearly related to the work in hand. The contributory material or activities, therefore, often tend to become ends in themselves instead of contributing to the unitary solution sought. Training in direct, straight, eclectic thinking can be secured, if there is a conscious practice of checking up repeatedly, and measuring the activity or discussion by the problem that constitutes the point of departure, and the solution of which is the goal of study.

*c. Stimulate the proposal of definite hypotheses.* Dewey, in this connection, goes into considerable detail to show the importance in good thinking of the "cultivation of a variety of alternative suggestions."[1] Parker,[2] who has worked out the

[1] Dewey, John, *How We Think*, page 75.

[2] Parker, S. C., *Types of Elementary Teaching and Learning*, pages 317-20.

whole question of "problem-solving" more fully than has been done in any book on methods, puts emphasis on this activity of explanatory guessing. Interesting illustrations are given as to the value this phase has had in the development of science.

*d. Develop a cautious, critical attitude when the problem seems on the road to solution.* Teach pupils the importance of suspending judgment, of maintaining an attitude of open-mindedness. This is important if we are to keep scientific thinking or creative thought from stagnating into "rationalizing." An apparently acceptable solution on a limited amount of data, when too readily accepted as final, is the source of most prejudices, which are, as the word implies, premature judgments held as final solutions.

*e. Compare solutions with the conclusions of others on the same question.* The problem method can be made a helpful method of motivating worth-while reading. Much of the explanatory, scientific, critical, and philosophical literature is closed to us because we have never confronted the problems they deal with, or have never attempted an independent solution, or even advanced a guess. If we have, we are interested in reading the discussions that relate to such problems. This activity is, of course, limited in its possibilities for immature pupils. Teachers, though, should be acquainted with some such literature affecting their subjects, and, in giving references, should keep them in reserve until some independent solution has been offered. The point is easily illustrated in questions in civics or in current events. After the class has arrived at a solution, and knows the reasons for that solution, present some speech or writing by a leader who has arrived at a different answer.

**Problems and projects may be for group or individuals.** It has already been shown (page 154), that any individual exercise is not necessarily a project. The reverse is also true,

and this applies to all the planes on which problem-solving may be undertaken. In agriculture and home economics work, one of the earliest fields in which true project work was developed, under the direction of the Federal Board for Vocational Education, considerable use was made of the "home-project" work. This was necessarily individual, and in the literature of the Federal Board we have several important bulletins dealing with the organization, supervision, and reporting of such individual home projects.[1] In a similar way individual pupils may be assigned problems for mental or symbolical solution, as well as for real solution, in the schoolroom.

On the other hand, in any form of problem-solving, the class may work as a group. The whole group may take up the solution of the whole problem, if it is a mental one; or all individuals in the group may work at the whole problem simultaneously, and possibly competitively: or the problem, if it is an ambitious one, may, after some preliminary group work, be split up into minor units of study or construction, so that the group is working forward to a solution coöperatively. Some experience in each of these forms is advisable.

**The project lesson plan.** The formal organization of a lesson plan was shown to be helpful and almost necessary in connection with the inductive development method. The same is true for the derived problem and project lessons. The general outline that is advisable for the problem method has already been given (page 165).

For the project method plan some valuable suggestions are found in the Federal Board Bulletin on *The Home Project*, mentioned in the footnote below. The following is found on page 12 of this bulletin:

[1] See, for example, *The Home Project, Its Use in Home-making Education;* Bulletin no. 71 (October, 1921), Federal Board for Vocational Education.

OUTLINE FOR PUPIL'S PLAN OF A HOME PROJECT

I. Name..... School.....
Address..... Date.....
II. Name of project.
III. Why have you chosen this project?
IV. After conferring with both your teacher and your mother, write a plan of the work you expect to do, listing:
(1) What you expect to accomplish.
(2) What you must know to accomplish this.
(3) What you must do to complete your project.
(4) What books and bulletins will help you.

Another helpful suggestion comes to us from the fact that the project involves a problem, a question about which there is uncertainty or doubt that has to be solved. Refer back to page 165, and examine the essential steps in problem-solving.

If we adapt the pupil's plan above to the teacher's purposes, and combine this with the problem-solving steps, we would have a lesson plan somewhat as follows:

1. Statement of problem involved, preferably in question form.
2. Direct class or individual pupil to suggest hypotheses, or guesses as to lines of solution.
3. From this preliminary discussion have pupil draw up a plan, stating:
   (1) What he must know or try to find out.
   (2) What he must do to test his suggested solution.
4. Require pupil to keep an outline record of what knowledge was sought and obtained.
   (1) The record of what he does will be in material form.
5. See that a definite account is given of solution reached and of principles or processes learned incidentally.

The last item in the lesson plan suggests that the "purposefulness" of a project activity must be educational, and that these values must be carefully conserved. We cannot take the educative values for granted as an incidental or by-

product of the activity. Neither can we let school work go as the mere activity itself, nor may we be satisfied with the mere resulting product itself. There must be testing for knowledge and technique learned in the processes.

## TEST AND STUDY-GUIDE FOR CHAPTER

### I. ENUMERATION

(2 points each = 4)

Name the two essential characteristics of the project method.

1.

2.

### II. ENUMERATION

(2 points each = 8)

Name four educational movements that have probably contributed to the evolution of the project method.

1.

2.

3.

4.

### III. ENUMERATION

(2 points each = 6)

State the three different planes on which a problem may be solved.

1.

2.

3.

## IV. ENUMERATION

(2 points each = 12)

Name six suitable topics for project work in English.

1.

2.

3.

4.

5.

6.

## V. ENUMERATION

(2 points each = 10)

Name five types of school activity for which the term "project" should not be used.

1.

2.

3.

4.

5.

## VI. ENUMERATION

(2 points each = 10)

Name the five steps usually found in problem-solving.

1.

2.

3.

4.

5.

## VII. COMPLETION

(2 points each = 30)

Fill in each of the blanks in the following sentences with a single word.

1. The "purposefulness" of a project activity must be..... We cannot take such values for granted as a.....of the activity. There must be testing for.....and..... learned in the process.
2. "A project is a.....act carried to completion in its..... setting."
3. A project is a definite and clearly.....task, approximating a genuine activity such as men are engaged in in.....life. The project method is the solution of.....on the..... plane of activity.
4. History is largely an.....subject; one that can best be covered by wide.....associated with a fairly well mastered .....gathered from a carefully condensed..... There is very little chance for any genuine.....in the study of history.

## VIII. RIGHT AND WRONG

(2 points each = 20)

Indicate, by writing "R" or "W" before each of the following statements, whether it is "Right" or "Wrong."

1. The best interests of teaching practice would be promoted if we could come to use the "project method" in its more restricted sense.
2. The term "problem method" should be thought of as more general than the term "project."

3. Problem-solving in the classroom has been too exclusively mental and symbolical.
4. There are many learning problems that cannot be approached on the project plane owing to the artificial conditions necessary to the schoolroom.
5. Any "purposeful" school activity should be called a project.
6. The subject-matter of the English work in high school should consist primarily of information, not of activities.
7. The project is merely an individualistic school exercise.
8. A project is any self-initiated activity of the child.
9. The project method does not necessarily involve curriculum reconstruction.
10. Projects may be planned for, and solved by, groups or by individual pupils.

## PARALLEL READINGS

Bonser, F. G. *The Elementary School Curriculum.*
Branom, M. E. *The Project Method in Education.*
Colvin, S. S. *An Introduction to High School Teaching,* chapter XIII.
Dewey, John. *How We Think,* especially chapter VI.
Foster, H. H. *Principles of Teaching in Secondary Education,* chapter VIII.
Federal Board for Vocational Education. *The Home Project.* Bulletin 71, 1921.
Krackowizer, A. *Projects in Primary Grades.*
Lull, H. G., and Wilson, H. B. *The Redirection of High School Instruction.*
Parker, S. C. *Methods of Teaching in High Schools,* chapter IX.
Parker, S. C. *Types of Elementary Teaching and Learning,* chapter X.
Stevenson, J. A. *The Project Method of Teaching.*
Wells, M. E. *A Project Curriculum.*

# CHAPTER VI

## THE APPRECIATION LESSON

The meaning of "appreciation" — Formalism in appreciation lessons — To what is "appreciation" applicable — An illustration from *Julius Cæsar* — The feelings and emotions in appreciation lessons — Appreciation and criticism — The aim in appreciation lessons — The method in — Plan for the development of appreciative enjoyment.

1. How to develop appreciation of thought — Handling the first rapid reading — Individual discoveries and difficulties.
2. How to develop appreciation of feeling — Stimulate by visualization — Ethical values — Do not tell pupils what to feel — Suggestive questions — Reading aloud — Find the "human interest" elements — Dwell on the heroic in action and character.
3. The appreciation of technique — University instruction in English — The results as seen in the high school — Using classics for ulterior purposes.

Test and study-guide for chapter — Parallel readings.

**The meaning of "appreciation."** Perhaps there is no type of school work that has suffered so greatly from being subjected to formalizing exercises as the lesson in appreciation.

Appreciation involves three important phases of mental attitude — enjoyment, admiration, and sympathy. It is obvious, therefore, that its chief appeal is to the feelings or emotions. These feelings accompany, or are aroused by, excellence or perfection; or by some large degree of superiority in execution which inspires us so that the mental experience is agreeable and satisfying. The fields in which such feelings are most commonly aroused are the arts, nature, truth, and conduct. The basis or center around which the feeling plays is some concept or idea.

Out of these relationships we realize that appreciation may be stimulated by things intellectual, esthetic, or ethical. These fields correspond to such school subjects as literature, music, drawing and painting, the study of art objects, or

construction work of various kinds with various materials. Since practically all of these subjects but one, literature, play such a small part in school life, and since literature plays such a very large part, perhaps it will be best to confine the explanation and illustration of the appreciation lesson largely to this subject, with an occasional reference to other subjects if it seems to suggest itself.

**Formalism in appreciation lessons.** Against the background of the definition given we may return to the opening statement that the appreciation lessons have suffered from formalism. This formalism in the study of literature may be accounted for as being due to two causes. The first of these is the effort to cast the appreciation lesson into the mold of the inductive development lesson; the other is the incubus of the college-entrance requirements, with their insistence on factual information about the classics and undue emphasis on technique. Both these formalistic influences are rapidly passing. Experience has shown that the inductive plan can have only the most general suggestions for the appreciation lesson.

Teachers of English in high schools, and principals and superintendents, have organized an opposition to college domination of the literature courses that has been effective in establishing a large degree of freedom. If English in the high school, and even in the elementary schools, still has too large an element of the scholastic and preparatory, this is due largely to the fact that the classics used are still the kind edited by the college specialists, with their introductions, footnotes, and glossaries of the preparatory type; or to the fact that teachers of English, having been trained in the university method, are naturally modifying their technique only gradually as they come to realize the real needs and social values possible in the study of literature from a more vital point of view. This grows out of a recognition that

only a very small percentage of high-school students will need the preparation for college English.

ASSIGNMENT: Find one or two articles, in the early numbers of *The English Journal*, which discuss the subject of college-entrance requirements in English. Prepare a brief report for the class.

**To what is "appreciation" applicable?** The appreciation lesson may be directed at different elements in a piece of literature. Sometimes emphasis will be put on one, sometimes on another, often on several, or even all of these elements. What is to be selected for an appeal to the feelings of enjoyment, sympathy, and admiration will be determined partly by the nature of the classic itself, and partly by the level of development of the pupils. These elements may be grouped in three pairs, all of which involve every sort of reciprocal combination. Appreciation lessons may be directed toward:

a. Thought or Feeling.
b. Content or Form.
c. Wholes or Details.

The reciprocal relations involved in these elements call for some explanation and illustration. In the reading of some classics we are conscious that their greatness lies in the thought stimulated. This stimulation may come not merely from the thought content — its truthfulness, its profundity, its usefulness; it may arise from the form in which it is expressed — its cleverness, its clearness, its force, its scope, its skillful massing of details. This appeal may lie in the piece as a whole; in its central theme or keynote; or it may rise to such levels only now and then, in certain masterful paragraphs or stanzas, or even in single lines or sentences that have lived as universally-acceptable truths like proverbs or adages.

**An illustration from the study of *Julius Cæsar*.** In

Shakespeare's *Julius Cæsar*, for example, the thought of the play as a whole has been shown by historical research to be far from the truth; the political situation at Rome was not at all understood as scholarship now understands it; neither Cæsar nor Brutus is given a proper interpretation. To appreciate this the *thought-content* as a *whole* must be compared with corrective scholarly accounts of the closing days of the Roman republic. We have here a type of work that is clearly beyond the average upper-grade or lower-high-school level where the play is usually studied. Yet there are details in the thought-content that can be brought out for their values of truthfulness — the envy of Cassius and the duplicity and power of Mark Anthony, or the fickleness of the Roman mob and the superstition of the age.

In the same way we could take up the *thought-form*, either as a whole or in detail. The general structure of the play, the masterful development of the theme to its turning-point, and the progress of the resolution to the tragic climax — in short, the whole conventional study of the dramatic technique as made classic by Freytag [1] and Miss Woodbridge.[2] Again we have in this study of the thought-form as a whole a more proper subject for study in university classes in dramatic technique than for the grade and high-school students. Nor is it easy to find form "details" that would be suitable for such students; perhaps the general development of the "rising" and "falling" of the action might be even more "teachable" from the point of view of appreciation of dramatic skill than the details of the technique.

**The feelings and emotions in appreciation lessons.** In the general field of feeling or emotions we may likewise direct the pupil's attention to the phases of content and form, as seen in the whole of a masterpiece or in selected details.

[1] Freytag, Gustav: *Technique of the Drama.*
[2] Woodbridge, Elisabeth: *The Drama, Its Laws and Its Technique.*

Sympathy or its opposite may be aroused with the emotional spirit or atmosphere of a poem as a whole, with the portrayal of the emotional life of a character in its completeness, or with occasional or temporary, or even varied feelings, in particular passages. Or, on the other hand, there may be an appeal to the artistic sense, the admiration aroused by the beauty of form, the rhythm, and the musicalness of the piece; sometimes as a whole, more commonly in specific parts. In connection with the whole matter of appreciative feeling we must not lose sight of the fact that the thought side can hardly be absent; feeling must have ideas or concepts to attach itself to. Occasionally such emotional reactions may be prompted by elements too subtle or elusive to be tangible or expressible in "ideas"; but the intellectual side is more commonly prominent enough to be analyzed and communicated.

The element of appreciation comes in in all such experiences in that the concepts, sympathies, admirations, or even the disapproval or repulsion of the thoughts or feelings contemplated, give us a feeling of pleasure or enjoyment because of the reality, intensity, cleverness, and sincerity with which the portrayal is made.

These emotional relationships may again be illustrated from *Julius Cæsar*. We may know Shakespeare's portrayal of Brutus is unhistorical but we cannot elude his art; we sympathize with the aristocratic reactionary as if he were a self-sacrificing patriot. Or we feel the cleverness of Mark Anthony's funeral oration as fitting the speaker and the occasion, or we rejoice at his well-chosen tribute to dead Brutus — "This was the noblest Roman of them all."

ASSIGNMENT: Illustrate the principles discussed under the topic "To What Is 'Appreciation' Applicable?" by showing how they would apply in some other English classic with which you are familiar.

**Appreciation and criticism.** In the thought that enjoyment, induced by intellectual, esthetic, or ethical stimulations, is the chief aim of the appreciation lesson, we recognize the distinction that has been made between the literature of information and the literature of inspiration, of knowledge, and of power. It is the province of the appreciation lesson to do for the student what, principally, the literary critic does for his readers. In this connection there is a valuable suggestion in the canons of criticism laid down by Coleridge, who was as great a literary critic as he was poet. He suggested the application of these three questions to any piece of literature:

(1) What has the author tried to do?
(2) Was it worth doing?
(3) Did he do it well?

Two sorts of literary criticism may be distinguished — the practical and the artistic.

Literary criticism is largely that type of book-reviewing which deals with books of the informational class, in which the above canons are applied for the purpose of giving the reader an idea whether a particular book will have any practical value for him, and whether there is any "use" in reading it.

Artistic criticism deals with that type of literature which is written solely for purposes of the reader's enjoyment, amusement, recreation, or inspiration. Varying degrees of values of this sort determine the literary merit of the work. Criticism of the highest type is intended as an inspiration in itself; it is appreciation sensed by the keenest intellect, the most sensitive feelings and sympathies, and expressed in terms that are themselves an inspiration. Criticism of this lofty type usually devotes its efforts to worthy materials, and largely labors to stimulate appreciation or approval of

exceptional merits. Some of the criticism may be negative, and in this phase of their work literary critics often contribute valuable constructive theories or interpretations of thought and life.

In our school work our selection of literature is largely confined to the worthy, and our appreciation lesson, therefore, must chiefly deal with the positive side. We must do for our pupils, in a simple way, what the critic does for the adult reader — inspire an appreciation, admiration, and sympathy that will fashion an attitude of pleasant enjoyment of the thoughts and feelings portrayed, and, to a rather limited degree in public school work, an enjoyment of the form in which such thoughts and feelings are made effective.

**The aim of appreciation lessons.** In a more definite form, what shall we aim at in appreciation lessons? What are the objectives of our study of literary masterpieces in school? Are they not, in general, —

(1) To get pupils to love good books;
(2) To value and enjoy high and noble thoughts;
(3) To understand and sympathize with human nature; and
(4) To realize the variety and possible intensity of life?

These may be consciously aimed at in varying degrees of the general and the specific in any piece of literature. We may be aiming to arouse a love of Dickens for some of his characteristic values. We may be striving to expose the pupil to the rollicking humor and the spirit of good-fellowship in *Pickwick Papers*. We may try to develop a conception of the eccentric good-nature of a Sam Weller, as a person we would have enjoyed knowing. We may enter into the rare humor of a single incident of his life, such as the writing of the "walentine." Or we may get to wish we could hear that worthy's father calling him "Samivel" for just once.

ASSIGNMENT: Find other statements of the aims of appreciation lessons, in any of the general teachers' manuals that deal with

*The Teaching of English*, such as Carpenter, Baker and Scott's, Chubb's, Bolenius, Thomas, Ward, and others.

(The teacher of English in the junior or senior high school, and the teacher of language and literature in the elementary schools, should have a general acquaintance with all such manuals for reference purposes.)

**The method of the appreciation lesson.** Many of such enjoyments would best be a casual "touch-and-go" affair, as it is between two friends in expressions of common appreciations. To formalize the work, to make too serious a task of it, is to reflect on the ability of the author to inspire such thoughts and feelings or the ability of the pupil to react if he is just naturally exposed. And this fault of over-teaching, of making a task of what should be a pleasure, is often accounted for by the vice of trying to have the immature grasp and appreciate all those things the adult easily sees, forgetting that in most of the classics the writer had the adult audience in mind.

Much of this guidance in appreciation must be a mere matter of contagion. If you yourself clearly see the beauties and keenly feel the inspiration, you will communicate it in simple, natural enthusiasms that will be accepted in sincerity by your pupils. If the inspiration is merely the information that it is there, if your analysis or insight is merely the affected echo of pedantry, or if you are merely assuming a pose for academic or business purposes, you are no "carrier" of the contagion. Your pupils will not catch what you do not have.

The fact that this matter of teaching appreciation is an informal "touch-and-go" affair, a subtle contagion, does not necessarily imply that school treatment of the classics may not be approached systematically, with a consciousness of a technique that will set a background for the best communication of appreciations. The fact that you are trying to

avoid the formality that may descend to stupid mechanism, or that may be governed by unnatural academic motives, does not involve the necessity of discussing a classic in a random, haphazard way, trusting to the spur of the moment, entering the class period without systematic preparation on the part of either pupils or teacher. The appreciative critic goes about his work as systematically as a creative artist blocks out his novel or his poem.

**Plan for the development of appreciative enjoyment.** The analysis above of the objects of appreciation in a literary masterpiece may give us our plan for the outlining of how to develop appreciative enjoyment. This will take into consideration the pairing of thought and feeling, of content and form, while the relative values of the "whole *vs.* detail" pair will be disposed of incidentally. This will give us three main topics for the further discussion of how to develop enjoyment of the values in literature:

(1) How to Develop Appreciation of Thought.
(2) How to Develop Appreciation of Feeling.
(3) How to Develop Appreciation of Technique.

These three topics will form the three main divisions of the remainder of this chapter.

### *1. How to develop appreciation of thought*

**Analysis for larger units and organization.** There are two ways to achieve this — rapid silent reading, or slow, laborious outlining or briefing. The former is the natural way; the latter, the common academic way. The possibilities in rapid silent reading, and in skimming, are just beginning to be discovered in school work. Scattered experiments with pupils, ranging all the way from primary grades through upper university classes, have shown wonderful possibilities for individual improvement in rate of reading, even for very

fast readers; and the experiments have likewise shown that this type of study pays equal, if not superior, returns over outlining as a method of getting the gist or general drift of a selection. This has already been discussed quite fully in the chapters on textbooks (I) and on collateral reading (II).

To substitute for this first natural reading the outlining method, for the sake of having something tangible to grade the pupil on, may have some advantages, but it surely has two decided disadvantages:

(1) The reading of the classic is at once put into the class of academic exercises, and a natural prejudice against it is not the proper attitude to put pupils in at the outset of the study.
(2) There is the further disadvantage of having the pupils feel that the work is going to be difficult to understand, which is an additional discounting of its probable interest.

The natural questions follow: "Are pupils then only to read such classics as are interesting to them?" "Are they not to be 'put through' the great worth-while standard things by any means?" "Do we not have to form their taste for these great books?" Such questions show a lack of confidence in the particular classics to be studied, which is often warranted, but they also show a lack of faith in the pupils. Worst of all, they show a misconception, altogether too common, of the aim of the work in literature. Beyond a doubt the chief aim is to arouse an interest in the authors studied, in the worthy types of literature that are presented, and this can never be done by making the samples studied uninteresting or distasteful. More harm than good will result from such a program.

**Handling the first rapid reading.** If the piece of literature being studied is at all extensive, this method of the first natural reading presents some difficulties. We must know that all pupils are covering the ground, and that they will all have completed the first reading by the time it is necessary

for the class to go on with further study of it along other lines. The teacher must estimate carefully how many pages of the book may reasonably be assigned each day. Let us suppose that the book is a novel, and that pupils may reasonably be expected to give an hour to preparation. A minimum assignment of from thirty to fifty pages a day, with due regard for natural chapter divisions, may be made. This will depend somewhat on the character of the book and the advancement of the class.

At the beginning of the class period a brief test of five or ten minutes may be given, on the model of some of the devices shown in Chapter XI, for example, a right and wrong test. This need be just enough of a test to show pupils they are to be held to account for the assigned reading. The test must be general and superficial enough to make a good grade possible for the single reading. There must be a frank, clear understanding of the nature and purpose of the test between teacher and pupils, and the spirit of it must be fairly maintained. The class period may then be devoted to a discussion of such questions as will clarify the situation, make important characters stand out, anything that will promote a clearer understanding of what is to follow without in any way transgressing on the sequel still to be read. If pupils are allowed leeway in reading, as often seems desirable, care must be taken that they do not "divulge" anything that may take off the edge of the interest for those who are proceeding at the minimum rate.

In this connection it must also be emphasized that this first exposure to the classic should in nearly every case be the first work that is done. This must precede any "introductions" that may be found in the school editions. Could anything be more stupidly calculated to destroy the charm of surprise in *The Lady of the Lake* than to have half the class discover, before they have started to read the poem

itself, that James Fitz-James is the King of Scotland? Yet school editions of the poem which reveal this in the "Introduction" are not hard to find.

Some of the discussion in the class period in connection with the first reading may be given to the gradual building-up of the main outline of the piece. Beyond this the time may be taken up by work on any of the detailed passages for thought and feeling, by methods to be explained presently.

In connection with this first reading for the general thought and organization, one further suggestion must be made. If some degree of outlining is thought to be necessary and helpful, great care must be taken not to make such outlining too detailed. This has been referred to previously, in another connection. Even with high-school classes, complicated degrees of coördination and subordination are a futility and defeat their own purpose. The detailed briefing of Burke's *Speech on Conciliation*, with the consequent dislike universally entertained of this great oration, is fast becoming a standard example among progressive English teachers of "how not to do it."

Give a few stimulating questions, especially intended to bring out the theme or the keynote of the selection. This method is perhaps more suitable in dealing with shorter selections that can be read in a single or a few preparation periods. It is especially appropriate for the brief lyrics or for the short narrative poems, such as *The Vision of Sir Launfal* or the poems of Longfellow usually found in the course of study.

**Individual discoveries and difficulties.** Secure, in the class period, volunteer expressions of individual discoveries, or of individual difficulties. It is very hard for an adult to get the immature pupil's point of view unless an opportunity is given for the expression of it. Such difficulties cannot be anticipated except by the experienced teacher, but a begin-

ning toward building up this understanding cannot be made too soon, nor can it be followed up too systematically or persistently.

Much of the standard literature we study in the schools has this value of stimulating thought or of inspiring portrayal of life as its chief reason for permanence. Some of this is too profound for any but adult appreciation, but some has the simplicity and universality which appeals to the child as well. This appeal must be sounded to be known, and voluntary expression of it must be encouraged by all means. The teacher who deals with "classics" effectively and with interest soon gets to feel he is a sort of "Professor of Things-in-General," and that all phases of life are his to deal with in his guidance of the growing mind.

**Rarely impart or reveal elements for appreciation.** If pupils cannot be led to make discoveries for themselves, the chance of their enjoying such elements is slight. This may often strike the teacher as esthetic blindness, but it may safely be assumed to be the blindness of immaturity. There is too much danger of overloading a child's capacity for appreciation by adult subtleties and sublimities, elusive charm and cleverness. This well-meaning attempt to serve all one's bounty will create either mental indigestion or a suspicion that the teacher's enthusiasms are not genuine. What the pupil himself does not naturally see, he will put down as affectation, insistence will be stamped as pretense, and the more fervently it is put, the more hypocritical will it be judged.

**Have some noble thoughts memorized.** The most puzzling problem in this connection is whether those passages not fully comprehended by children should be memorized. Much might be said *pro* and *con*. The position is here taken that memorizing of such material, to a limited extent, is justified, because of its probably permanent values as an in-

spiring asset. Only, two cautions should be noted. This type of work should not be overdone, and it should not be made burdensome in quantity. Moreover, the memorization should not be undertaken before a thorough effort has been made to create the fullest understanding possible. If the passage is too profound or subtle to make some success of a class period of discussion and explanation, the material should probably not be memorized. Complete realization of all the truth involved need not be attained; more will come in the memorization itself, and full significance of valued passages have dawned on us only after intense experiences in later years. And who has not valued the possession of some inspiring lines hitherto imperfectly understood? A single verse of Scripture or of some noble poem has served more varied uses, if it was at immediate and complete command, than a related volume.

ASSIGNMENT: Let each member of the class find a statement or argument, *pro* or *con*, on the question of Memorizing in School Work.

### *2. How to develop appreciation of feeling*

**Three avenues of appeal to the feelings and emotions.** In addition to the appreciative enjoyment of clear, subtle, noble, inspiring thought, there is large scope, and perhaps still larger scope, for the pleasant exercise of the feelings and emotions in the reading and study of literature. There are three avenues of appeal connected with the better class of literature.

(1) There is, first the appeal to the *esthetic* or artistic sense, in the form or technique, in such matters as style, meter, rhythm, choice of musical word or phrase, form of construction, and the like.

(2) Another phase of enjoyment comes in connection with the ideas suggested, the descriptions of nature or people, anything that is set before the mind's eye *objectively* that arouses

sensations or associations with a strong affective accompaniment.

(3) Third, there is the vicarious sympathy we enter into in the feelings or emotions of persons or characters in the piece. This might be termed imaginative or *dramatic* feeling appreciation.

The two latter are often so closely related and the approach is so similar that these may be treated together as far as teaching effort is concerned. The esthetic phase of technique appreciation will be taken up separately. Some direct suggestions of approach in connection with the objective or dramatic phases of feeling will be given first.

**Stimulate by visualization.** Plan a careful selection of elements for visualization, or stimulation of the imagination. My own earliest recollection of "induced appreciation" was on the suggestion of the instructor to picture what sort of image Milton must have had in mind when he wrote the line in *L'Allegro:*

And Laughter holding both his sides.

It was a flashing human contrast to the Milton of stern patriotism and of solemn theology that had been described for us in the *History of English Literature* that had been studied before. It led to a reading on a wider scale about his career at Cambridge, and the golden years of his youth at Horton.

There is the widest field of choice for such material in every poem and novel, every essay and play, sometimes in rich masses of description, sometimes in tense scenes of action, sometimes in the whole career of well-drawn characters, oftener in single words or lines. The suggested visualizations may be scattered with a lavish hand — some will fall on stony places, some among thorns, but some will fall on fertile ground. The teacher of English literature need not be surprised at the display of all manner of individual "ap-

perceptive bases." Youth has been charmed with massed detail where the adult is often bored. The opening section of *Ben-Hur*, or the ornate imagery of the early descriptions in *The Talisman* will sometimes provoke an adolescent enjoyment that rebukes the adult judgment of suggestions to skip or skim.

**Ethical values.** Search for ethical values, and do not hesitate to provoke discussions about them. These are found in the themes or "purposes" of much that appears in the course in literature, and there is an even richer field in the informal analysis and discussion of characters. Much of the study of literature in the public schools comes at a stage when ardent judgments of right and wrong in conduct are easily aroused.

**Do not tell pupils what to feel.** Get the pupils to feel; do not tell them what to feel. The danger of "gushing" over our own discoveries, our own feelings, is even more damaging to our purposes than in connection with the appreciation of thought. The tendencies to contempt, or insincerity, are even more harmful here. The teacher should have the grace and good judgment to respect the tastes of his pupils, even their courage to deny they are "charmed" by a particular classic, or a particular passage, especially if they are willing to advance explanations of dislike.

Literary criticism is full of individuality; rival tastes do not necessarily imply that one side or the other is lacking in taste. An appreciation of the realism in the literature of to-day may seem preposterous to some; but such "conservatives" can hardly read the most reliable and respected critics without feeling that somehow they have drifted out of the current of literary progress. Try sometime to demonstrate to a boy the real superiority of *Treasure Island* or *Captains Courageous* over any common "thriller" in a current story magazine.

**Suggestive questions.** Plan your assignments to make *pupils find* beauties. Stimulating the search is the limit of our duty; the discovery must be left to the pupil. But an occasional gem found is more valuable than a displayed hoard. The most feasible method seems to be the suggestive question. The collections of available materials are numerous. The various editions of the classics often contain such lists of valuable questions. Several publishers have issued Manuals[1] covering the whole range of their editions. Teachers of English have written similar Manuals.[2]

With all of this paraphernalia of devices the teacher of reading and literature should make herself familiar. A selective composite will yield an embarrassment of material. There is probably a greater danger of overdoing this in a mechanical way than of failing to find a sufficiency of material for such exercises. The collection and comparison of such question lists will in itself be a wholesome revelation to the teacher in two directions. She will be surprised at how many and what different elements are found by various editors and authors; and she will be astonished to find questions that confront her in baffling rebuke, "What in the world is that question driving at?" Perhaps it is some chance misprint; perhaps a revelation of some "blind spot" in our own taste. Let us be as charitable to our pupils as we are to ourselves in such a dilemma.

**Reading aloud.** Read aloud to your class impressively, avoiding affectation. Every teacher of literature should be

[1] A few may be mentioned: *An Introduction to the English Classics,* by Trent, Hanson, and Brewster (Ginn & Co.); *Questions and Topics* (Merrill Co.); *Teacher's Manual for Study of English Classics,* Marsh (Scott, Foresman & Co.); Thomas, *The Teaching of English* (Houghton Mifflin Co.).

[2] *Teaching Literature in the Grammar Grades and the High School,* Bolenius (Houghton Mifflin Co.); *Teachers' Outlines for Studies in English,* Blakely (Amer. Book Co.); *Study Book in English Literature,* Hooker (Heath & Co.); *How to Study Literature,* Heydrick (Hinds, Noble).

required to take at least one course in "Expression"; and perhaps no more. The best way to communicate the contagion of feeling is to try to interpret the author to the class. Much of poetry should be heard, as well as read. Sometimes good readers in the class may be entrusted with the task, but never should the halting "oral-reading-class" exercise of the primary days be allowed to jeopardize the values of the appreciation period. If pupils are to read, it should be on prepared parts, and then only if a tradition of interpretative expression has been built up.

**Memorize selected portions.** The values and limitations of memorizing thought passages were discussed in a preceding section (page 187). The point of view applies similarly to passages rich in feeling content.

However, in this connection, the value of presenting worthy drama that has been memorized may be touched upon. The reading dramatization is a hazardous undertaking, apt to degenerate into a stumbling, mechanical exercise, but if the labor of memorizing can be motivated, say by public presentation, there is no more effective way to get a real appreciative sympathy with the action and the characterization. Even a Shakespearean play is not too ambitious an undertaking for high-school freshmen. Some of the longer leading parts can often be conveniently divided among several actors. *As You Like It*, with two Rosalinds and two Celias, will give no one a part of more than 275 lines. The staging and costuming can all be undertaken by the pupils themselves, and in a most effective way. Give each character a free rein to develop his part, and, as he learns his lines, he will reveal an appreciation that will win real applause. The whole affair — a real project, by the way, if it gets a real audience presentation — need not consume more than the five or six weeks that are usually devoted to the academic "frazzling" of a play in class study.

**Find the "human interest" elements.** Some interesting analyses have recently been attempted of the motives that dominate children's reading in the upper grades and in high school. In one such study, an unpublished master's thesis at the University of Illinois, pupil questionnaires were used to find the weight of various elements of interest in a list of books popular with boys and girls. The list of books comprised the following thirty books:

*Call of the Wild*
*Treasure Island*
*Tom Sawyer*
*Ivanhoe*
*Kidnapped*
*Huckleberry Finn*
*Tale of Two Cities*
*When a Man's a Man*
*White Fang*
*Freckles*
*Penrod*
*Little Shepherd of Kingdom Come*
*Sherlock Holmes*
*Swiss Family Robinson*
*Lady of the Lake*
*Shepherd of the Hills*
*Robinson Crusoe*
*Lorna Doone*
*Little Women*
*Pollyanna*
*Girl of the Limberlost*
*Eyes of the World*
*Laddie*
*Rebecca of Sunnybrook Farm*
*David Copperfield*
*Trail of the Lonesome Pine*
*Harvester*
*Seventeen*
*Secret Garden*
*Promised Land*

The elements investigated in the questionnaire were these:

REASONS WHY YOU ENJOYED EACH BOOK

1. Because of the mystery in it.
2. Because of stirring adventure.
3. Because of the boy hero.
4. Because of the girl heroine.
5. Because the principal boy or girl character was like real boys or girls you know.
6. Because the principal boy or girl character was unlike the real boys or girls you know.
7. Because of the descriptions of places or persons.
8. Because it dealt with life on the sea.

9. Because of the humor.
10. Because it dealt with persons or events in history.
11. Because it dealt with animals.
12. Because story involved *success*, especially in gaining money.
13. Because it dealt with familiar scenes and life.
14. Because it dealt with strange or novel scenes and life.
15. Because it appealed to sentiment or emotion.

**Dwell on the heroic in action and character.** This is evidently justified from two motives. Heroism is one of our most potent channels of interest, and it is through this indirect means that the most effective ethical inspiration comes to adolescence.

ASSIGNMENT: Illustrate, in some detail, how you would apply the principles stated in this section on "How to Develop Appreciation of Feeling" in connection with some particular classic. Let each member of the class select a poem or story independently for this assignment. Have some of the papers read in class and the suggestions evaluated.

### *3. The appreciation of technique*

**Teaching technique.** It has been intimated that only a very limited amount of emphasis on the technical, artistic side of literature is advisable, even in the high school. The reasons for this should be clearly understood. The emphasis on technique in the study of the classics can be attributed to two causes:

a. The demands of college preparatory requirements;
b. The confusion of the two phases of the English teacher's work — the teaching of literature and the teaching of composition — and the natural effort to coördinate the two.

The importance of college requirements as a factor in the study of literature may be considered by raising the following questions: "Is the teaching of literature in the public schools a question of training consumers, or producers; of

developing understanding, or skill; of bringing out taste, or talent."

**University instruction in English.** Even university courses in literature and composition may be judged by these criteria, and found wanting. The average university course in composition may be taken as an illustration. Two types of work are usually prominent, the compulsory "Freshman-English" course, and a variety of upper-class elective courses in story-writing, play-writing, and novel-writing. Very little opportunity is given for developing a practical, usable form of exposition, which is becoming more and more necessary for the business man and for men in almost every profession. The course in journalism is the only effort recently introduced to supply such needs, and these courses usually have a too highly specialized point of view to be attractive as electives to the medical or law student as a means of giving him a helpful training in practical everyday expression. The sorrows of graduate students struggling with the organization and writing of a thesis are too common, and the product often too pitiful to deny the criticism is fair.

Moreover, the compulsory "Freshman-English" course is too often a pious hypocrisy. Universities lament the unpreparedness of entering students, and then pretend to make good all their shortcomings in a single year of work under a host of untrained graduate students, fellows, and assistants, who have had no teaching experience, and who are often little more than theme-readers. To them is entrusted the miraculous transformation of the unprepared Freshman, who seems to have profited so little under the instruction of three or four years with high-school teachers who are far better trained and certainly more experienced in their work than the average university instructor of "Freshman English." After this first year the English department has little more

to offer, for the great majority, on the composition side. For the rest — the cream of the class, the English "majors" — the elective courses, intended to train literary producers, are open. Such courses are not out of place in a university; but opportunity for development of the others has certainly been neglected.

**The results as seen in the high school.** Unfortunately the tradition of this type of composition work is also present in the high school. English teachers, turned out by the university process, in far greater number than literary producers, and textbooks in composition mostly written by university specialists, both carry the method and the aim of developing story-writers, poets, novelists, and dramatists into the composition work in the high school, and even the grades; and, because of their close coördination, this is carried over to an unwise extent into the appreciation lesson. If the training of producers were the aim, the study of poetical technique, of dramatic technique, and of the short story and novel, as gained from masterpieces, would be a reasonable enough procedure, as it is followed in such university courses in play-wrighting and verse-smithing.

But the high-school teacher's chief function as a promoter of good literature is the developing of consumers, rather than producers. Only a very few in each of her classes will even get the chance for university training for production; only a fraction of one per cent will join the select group of producers, or even of the dabblers at production. An emphasis on technique in the appreciation lesson in the public schools is largely out of place. Here the function of the study of literature is the development of understanding, of enjoyment, of sympathy, of interests, and of admiration for the content, rather than of skill in the imitation or adaptation of form and technique. It is primarily and almost exclusively a question of developing good taste in all. This does not mean

that a ready recognition and a generous encouragement is not to be given to talent as it may occasionally display itself.

Nor does this involve a complete ignoring of technique. A little of such experience is worth while for all as a mere matter of culture. Even those who do not go to college should know the difference between a ballad and blank verse. They may also have some practical use for Scott's uniform method of describing persons, or of Macaulay's devices of paragraph construction.

No formal plan of technique study is necessary. Occasional suggestive questions, thrown in with those relating to the appreciation of thought and feeling, or the discussion of questions relating to technique raised by the pupils, will give this element of literature adequate consideration.

**Using classics for ulterior purposes.** A single further negative suggestion must be made with reference to the study of classic literature. The classics should not be used as material for exercises with motives other than appreciative study and enjoyment. It is unfair to create a dislike for a poem because it offers convenient puzzling material for drill in parsing, diagramming, or outlining, or for illustration of rules and definitions in grammar, punctuation, and rhetoric. The relationship should rather be reversed. If analysis of a section or of a sentence, or the parsing of a word or phrase, will aid in the understanding or appreciation of a passage it should be used. We must be careful, though, to maintain the correct attitude in the pupils as to which is the means and which the end — literature does not exist for grammar's sake, rather grammar and its allies for the sake of literature, in the interpretation as well as in the production.

## TEST AND STUDY-GUIDE FOR CHAPTER

### I. ENUMERATION

(4 points each = 8)

Name the two chief reasons for the prevailing formalism found in the teaching of literature.

1.

2.

### II. ENUMERATION

(3 points each = 12)

Name four methods that may be used for the development of appreciation of the thought of a classic.

1.

2.

3.

4.

### III. ENUMERATION

(2 points each = 4)

State two disadvantages in having pupils outline a classic.

1.

2.

### IV. ENUMERATION

(3 points each = 18)

Name six devices that may be used, in connection with class work, to develop an appreciation of feeling in connection with the study of a piece of literature.

1.

2.

3.

4.

5.

6.

## V. ENUMERATION

(2 points each = 6)

State Coleridge's three "canons of literary criticism."

1.

2.

3.

## VI. COMPLETION

(2 points each = 32)

Fill in each of the blanks in the following sentences with a single word.

1. The chief appeal of the appreciation lesson is to the feelings. The most important emotions aroused are ..... and .....

2. Appreciation lessons may be directed toward any or all of the following paired elements:

   ..... or .....

   ..... or .....

   ..... or .....

3. There are two possible methods for getting pupils to make an analysis for the larger units of organization in a piece of literature, ..... reading and .....

4. ..... impart or reveal elements for appreciation.

5. The teaching of literature in the public schools should aim to train ..... not ..... of literature.

6. If some outlining is thought to be necessary and helpful, great care must be taken not to make such outlining too .....

7. Much of the development of literary appreciation is a matter of .....; to succeed, the teacher must be a "carrier."

### VII. RIGHT AND WRONG

(2 points each = 20)

Indicate, by writing "R" or "W" before each of the following statements, whether it is "Right" or "Wrong."

1. Most of the classics studied in the public schools were written primarily for adults.
2. The development of conscious technique in communicating appreciation is undesirable.
3. Pupils should be required to read "introductions" to a classic before they read the classic itself.
4. Having pupils memorize passages not fully comprehended is justifiable.
5. High-school pupils do not care for ethical discussions in connection with work in literature.
6. Much emphasis should be put on the technical, artistic side of literature in the high school.
7. University courses in literature and composition are putting too much emphasis on the practical side.
8. The classics should not be used as a basis for the work in composition and grammar.
9. High-school English teachers are opposing college domination of the high-school English work.
10. Most high-school students do not need the college preparatory type of English work.

## PARALLEL READINGS

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Ward, C. H. *What Is English?*

# CHAPTER VII

## THE OBJECT LESSON AND THE LABORATORY METHOD

The contribution of Pestalozzi to educational method — The principle of "observation."

1. The purposes of laboratory work — The mental discipline conception — Real contacts to impress principles — To learn laboratory technique — Scientific attitude — The true worth of the high-school laboratory.
2. Difficulties and dangers of laboratory work — Mechanical work; loss of time — Excursions and field trips — Desire for expensive apparatus — Field for the "object-lesson" method — The laboratory method.

Test and study-guide for chapter — Parallel readings.

**The contribution of Pestalozzi to educational method.** Modern educational theory begins with the publication of Rousseau's *Emile*, in 1762. Rousseau himself was not a teacher, but rather a social theorist, and it remained for men inspired by the French philosopher to modify his theories and expand them into practical forms. The earliest, and probably the greatest of those whom Rousseau inspired was Pestalozzi, who clearly deserves the honor of being recognized as the founder of modern educational *practice.*

Pestalozzi formulated a complete philosophy of education. This has been summarized in a few paragraphs by Cubberley in the following words:[1]

The development of man he believed to be organic, and to proceed according to law. It was the work of the teacher to discover these laws of development and to assist nature in securing "a natural, symmetrical, and harmonious development" of all the "faculties" of the child. Real education must develop the child as a whole — mentally, physically, morally — and called for the

[1] Cubberley, E. P., *Public Education in the United States*, pages 264–65.

training of the head and the hand and the heart. The only proper means for developing the powers of the child was use, and hence education must guide and stimulate self-activity, be based on intuition and exercise, and the sense impressions must be organized and directed. Education, too, if it is to follow the organic development of the child, must observe the proper progress of child development, and be graded, so that each step of the process shall grow out of the preceding and into the following stage. To accomplish these ends the training must be all-round and harmonious; much liberty must be allowed the child in learning; education must proceed largely by doing instead of by words; the method of learning must be largely analytical; real objects and ideas must precede symbols and words; and finally the organization and correlation of what is learned must be looked after by the teacher.

Still more, Pestalozzi possessed a deep and abiding faith, new at the time, in the power of education as a means of regenerating society. . . .

Pestalozzi also resented the brutal discipline which for ages had characterized all school instruction, believed it by its very nature immoral, and tried to substitute for this a strict but loving discipline — a "thinking love," he calls it.

From the first paragraph of this extract let us select a part of one sentence for emphasis to show its special relation to our problem of method — "Education must proceed largely by doing instead of by words; the method of learning must be largely analytical; real objects and ideas must precede symbols and words." The extract as a whole shows the problem of methods in its setting.

In tracing the consequences of Pestalozzi's new ideas, Dr. Cubberley makes the following estimate of the effects of this element of method: [1]

The introduction of the study of natural objects in place of words, and much talking about what was seen and studied instead of parrot-like reproductions of the words of a book, revolutionized both the methods and the subject-matter of instruction in the developing elementary school. Observation and investigation tended

[1] Cubberley, E. P., *Public Education in the United States*, page 266.

to supersede mere memorizing; class discussion and thinking to supersede the reciting of the words of the book; thinking about what was being done to supersede routine learning; and class instruction to supersede the wasteful individual teaching which had for so long characterized all school work. It meant the reorganization of the work of elementary education on a modern basis, with class organization and group instruction. . . . Observation led to the development of elementary science study, and the study of home geography; talking about what was observed led to the study of language usage, as distinct from the older study of grammar; and counting and measuring led to the study of number, and hence to a new type of primary arithmetic.[1]

**The principle of "observation."** The simple "object lesson" of Pestalozzi's day and of its advocates in this country, beginning with the Oswego Movement in the middle of the last century,[2] has developed in so many ways in our teaching method that hardly a subject is taught without some of this element being prominent. The use of objects, globes, exhibits, pictures, the stereopticon, motion pictures, and, perhaps most prominent of all, the laboratory method and the field trips of science teaching, are all phases of the recognition of the educational value of direct observation, contact with material realities, and objective study of processes and conditions.

There are three psychological principles which are recognized as putting all of this type of study on a high plane.

*a. The superior vividness of reality as over against symbols.* This involves the distinction between getting ideas through sense-impression, experience, and analysis on the one hand,

[1] How this Pestalozzian "method" developed and dominated the elementary-school system of the United States in the fifties and sixties is shown in detail in the next chapter of Cubberley's *Public Education in the United States*, especially on pages 294–311.

[2] For a good description of this, and its influence in shaping the developing normal school, see Part II of Chapter X of Cubberley's *Public Education in the United States.*

and verbal definition or description, or by inference from verbal context on the other. The latter involves the necessity of visualization and imagination, and is hampered by the fact that the impression is gained in a roundabout way and is hardly ever as complete, exact, or economical.

*b. Impression through several senses is most effective.* This was shown (page 82f.), in the discussion of the inductive-development method, to be one way in which concepts are built up.

*c.* "*Learning by doing.*" This merely carries over the idea of observation to processes. Skills, habits, and technique cannot be learned by reading about them. Not even observation of others will make one a swimmer or a juggler. Models for imitation may be helpful preliminaries, but we have to get the "feel" of the movements; we have to learn control and proper coördination by practice. This is as true of mental activities as it is of motor acts.

This implies that the method of learning, the technique of study, should be definitely analyzed out of a learning process, and be brought directly to the pupil's consciousness as a method of work that can be generally applied, or that can be used in meeting a variety of mental problems. A number of such concepts of method, as, for example, outlining, skimming, use of indexes and tables of contents, and the art of definition, have already been referred to in other connections.

ASSIGNMENT: Select some particular topic in any school subject, suitable for a single lesson, and try to make an exhaustive list of all the "object" teaching that could possibly be introduced in connection with it, if there were no limitations as to expense, the time necessary to make or secure such materials, etc. Which, if any, would you use if you were going to teach this particular lesson in a few days?

### *1. The purposes of laboratory work*

We may now, against the background of this history of

object teaching and observation, consider the purposes this method may and may not serve, especially in its more fully developed form of laboratory work, and the difficulties we encounter in using it.

**The mental-discipline conception.** Science teachers often indulge in naïvely contradictory attitudes with reference to the theory of mental discipline. In arguing for a larger place for the sciences in the curriculum they have been among the leaders in the attack on the supposedly disciplinary values claimed by the defenders of traditional subjects. Then, in building up a constructive argument for the sciences, they have often assumed the validity of the theory they had derided. It is a rather common thing to find such science teachers commending laboratory work on the ground that it develops powers of observation, reasoning, induction, etc. This is unfortunate, for the argument could easily be validated if methods of science teaching were adapted to inculcate "concepts of method," and if the argument were then modified so as to claim training in *methods* of observation, analysis, induction, and the like.

**Real contacts to impress principles.** A prime purpose of all object teaching, whether in the class-room, laboratory, or on excursions, is to clarify and impress principles by real contacts. Laws of physics, classifications in botany, and formulæ in chemistry may be learned by rote, or be partially understood from textbook descriptions, but a great advance in effectiveness of teaching is accomplished by actual contacts with specimens, materials, and apparatus.

Such work can be made more effective still by relating abstract principles and laws to the observation of practical applications of them. The motivation for the learning of the theoretical side of electricity by the study of the telephone, automobile ignition, and radio is beginning to be recognized and utilized by progressive teachers.

**To stimulate interest by contact with realities.** Some subjects are confined to reading activities, while others may make large use of the object and observation lesson, and of the appeal to the natural instincts of curiosity and constructiveness to arouse the interests of pupils. An interest in science is one of the most valuable interests a student can carry away from high school or college. The allurement of discoveries and inventions, and of subjects that have to do with nature and man's processes of production, is recognized as a possibility even for upper-grade pupils, and this accounts in large part for the growth of the general science movement in the grades.

Although this motive of exposure and interest is prominent, it is not unmixed with the scholastic preparatory aim. It is the latter motive which has made general science the battle-ground of specialists, and is a retarding influence rather than a helpful one. To the extent that the "preparatory" aim wins out will the general science field suffer in the attractiveness of its appeal to the instincts prominent in the pre-adolescent age. High-school science itself has sacrificed considerable of the interest-appeal to the preparatory objective, as, for example, in the case of the earlier emphasis on mathematics in physics.

**To learn the laboratory technique.** This is an extension of the suggestion made on page 205. Aside from the values possible in transferable study technique, there is the method of working in each of the different sciences. Skill in manipulation of the compound microscope and the preparation of material for the slides in the biological sciences illustrate this phase. The setting-up of apparatus in physics and chemistry experiments are similar examples of the development of certain skills. While this is not a prominent purpose, it has some value for those who are preparing for more advanced work in the same science.

**To teach the spirit of true observation and experimentation; to develop the scientific attitude.** This purpose of laboratory work has hardly been noticed in high school, and is often lacking even in university work. Questioning university classes in different institutions, for several years, has revealed the fact that very few advanced students, even science majors, had gained a true or worthy conception of the meaning of an "experiment." A thorough search of scientific literature yielded very meagre results that could be used as references to give students of education an idea of what is meant by "scientific method."[1] We have reached the point in a number of social studies, notably sociology and education, where we are ready to lay aside *a priori* reasoning, and the vague empirical literature, for principles based on research that follows the same rigid "scientific method" that has been developed in the natural and physical sciences.

There are certain fundamental principles of practice in scientific observation and experimentation that should be "generalized" out of laboratory experiences, so that they may be applied in these other fields. The common misconception of college students as to the real significance of an experiment is amusing. To most of them, as far as they are able to express it, it means following the directions of a Manual, or working out a formula to agree with a principle previously learned in a textbook. In short, it is rare to find a student who does not think of "experimenting" as synonymous with "an illustration of principles by the use of real materials." No fault need be found if much of the science laboratory work serves this purpose, but if it ends there it falls far short of its possibilities. Science students should not be surprised to learn that the genius of true experimenta-

[1] The best discussion is Sanford (F.), *How to Study, Illustrated Through Physics*, published by The Macmillan Company, 1922.

tion consists in observation under "controlled conditions," and that "control" of the factors and the determination of results is made possible by accurate measurement and exact statistical analysis. They ought not to be surprised to learn that a science cannot merely be defined as a "field," that it is a science only because of the use of a "method," and that this method is common in its general principles in all sciences.

If even high-school students could be led to understand that there are various types of scientific work designated as "experiments," it would be easier for them to understand the full significance of true scientific method. If they were shown the difference between the experimentation of the pioneer,[1] the confirmatory or challenging experiments, and, finally, the academic experiment, it would be possible to get them to comprehend the real meaning of experimentation so that the method might be applied more generally in practical matters. In the same connection some wholesome impressions might be gained as to the importance of "suspended judgment" on hypotheses, as was suggested in connection with the problem method. (See page 168).

**The true work of the high-school laboratory.** Aside from the purposes outlined above, with special emphasis on the necessity of developing the true scientific attitude, laboratory work in the high school should be given a far more practical bent. This applies equally to general science work in the grades. The science curriculum, as is the case with most other subjects, is largely determined by textbook writers, and the majority of these are too much influenced by the college specialist's aim of making the work in the public schools preparatory. In spite of this preparatory emphasis the universities may be charged with a strange inconsist-

[1] Sanford's *How to Study*, gives a most interesting illustration of this in a résumé of Newton's work.

ency, in that they usually insist the high-school year of science must be repeated "more thoroughly" after the student enters college. No one but the college specialist can stop this discouraging repetition, as far as the college students are concerned.

The high-school teacher of science should take for granted that the necessary preparation will be done thoroughly by the university science courses anyway, and make up his own course with prime consideration of the social needs of the great majority of his classes who will not be able to go to college. New types of science textbooks and laboratory guides, with this point of view, are beginning to appear as the leaders of high-school science teaching enter the field of textbook authorship.

Where the adopted textbooks are of the college-preparatory type, science teachers may give their laboratory work a more practical turn, and a similar type of material may be introduced in the demonstration-lecture periods. These offer another helpful form of the "object-lesson" method, and one that is perhaps even more economical than the laboratory method.

ASSIGNMENT: Make a list of such "practical problems" as might be taken up in some particular science.

### *2. Difficulties and dangers of laboratory work*

There are several difficulties and dangers connected with nearly all forms of "object-lesson" teaching — in the simple object observations in the elementary school, in laboratory work, and in field trips or excursions.

**Mechanical work, and loss of time.** In laboratory work there is the special difficulty of pupils' merely following out mechanically the directions of a Manual. There is little mental reaction, often no clear conception of the purpose of the experiment, and, not uncommonly, a dishonest juggling

with data obtained in order to make the experiment "come out right." This danger has been recognized by many teachers of science, and preventive measures can be taken to lessen considerably this kind of work.

Loss of time through inefficient classroom management is another defect of much laboratory work. A recognition of the fact that much time may be wasted under the informal conditions that have to prevail in the laboratory, has led many teachers to prefer the demonstration lecture. Students waste time dawdling and visiting during the time of setting up apparatus, and it is not an uncommon experience to find some just prepared to undertake the actual experiment when the period closes. The sciences in high school have been given a generous share of the students' time, but it has been pointed out, with considerable justice, that "it is by no means clear that the sciences can profitably use double periods." [1]

This same waste of time must be carefully guarded against in every type of "object-observation" lesson. If all pupils are to have the experience and contact with the realities involved, a sufficient number of specimens must be provided for all, efficient means of distributing them must be carefully planned, and pertinent questions and suggestions to direct the observations progressively must be thought out carefully in advance.

**Dangers in excursions and field trips.** Similar careful planning is highly important in order that all may see the things that were intended, and to keep the excursion from being a futile frolic as far as educative values are concerned. This danger is so apparent that too many teachers hesitate to undertake excursions, though they are willing to recognize the educative possibilities "if the trip could be managed."

[1] Judd, Chas. H., *Introduction to the Scientific Study of Education*, page 260.

Such management is possible. Any teacher who can control her group properly in a classroom should be able to make the excursion a success, if sufficient foresight is taken.

Strayer has given us an admirable series of suggestions for such observation excursions: [1]

1. The teacher must have clearly defined in her own mind the purposes of the observation. . . .
2. It is not enough that the teacher know just what data she expects the children to gather toward the solution of a particular problem; she must know exactly what data are available under the conditions governing the observation.
3. The preliminary work must have prepared children for their observations by giving them very definite problems to solve. Often it will be advantageous to have these problems written in notebooks.
4. Children not only need to want to see, but also need to be directed while they are observing. Nothing is easier than to look and not see what is essential.
5. It is always advisable to test the success of the observations while they are being made. There is nothing more difficult than to correct a misconception growing out of careless or inadequate observations.
6. It is well to remember that not merely number of observations counts in the solution of a problem. It is rather observations under varying conditions which give weight to our conclusions. One intensive observation may be worth a thousand careless ones.
7. When children are taken on excursions, great care must be exercised to keep them under proper guidance and control. The organization of children into smaller groups with leaders who are made responsible for their proper observance of directions will help. These leaders should have been over the ground with the teacher before the excursion. The assistance of parents, teachers, or of older pupils will at times be necessary.
8. There should be definite work periods during the excursion, just as in the schoolroom or laboratory.

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[1] Strayer, Geo. D., *A Brief Course in the Teaching Process*, pages 58–59.

9. A whistle, as a signal for assembling at one point, will help in out-of-door work, provided it is clearly understood that this signal must be obeyed immediately, and under all circumstances.

**Desire for expensive apparatus.** A third difficulty often met with in connection with science teaching in the upper grades, and especially the high school, is the desire or felt need on the part of the instructor for too costly and too intricate apparatus. This is especially true of beginning teachers, just out of the university. They come from laboratories equipped on an expensive scale, containing, naturally, all known equipment for each of the sciences. Much of this is necessary only for advanced courses and for research. They have never been shown that effective work can be done, during the first year of any science, with a great deal of home-made equipment. Science students looking forward to work in the public schools should make equipment a special study, and should build up a list of needed materials, with sketches or descriptions. Some teachers, with a special gift at mechanical ingenuity, have worked this out to a remarkable degree, even in universities. Science teachers, in their early years of teaching, should make it a point to visit a number of university and high-school laboratories, with a special view to discovering possibilities along this line.

ASSIGNMENT: Collect a list of such "home-made" apparatus for teaching any one of the sciences.

ASSIGNMENT: Write up your own experiences as a student with the laboratory method or object lessons. Evaluate the experience critically. Did you learn any impressive, lasting lessons? Did any of the dangers and difficulties mentioned defeat the purposes that were intended? Do you have any objections to laboratory work in science?

**The field for the "object-lesson" method.** It is already apparent from the foregoing discussion that the object-

lesson, in the form of laboratory work, is prominent in the teaching of all the sciences. It has also been brought out that there are simpler forms of the object-lesson and of observation work than the laboratory exercises, which, in most sciences, have considerable of the "experimental" spirit about them. But, as commonly conducted in the high schools, it is worth while noting that there is a marked difference between the type of laboratory work done in physics and chemistry, on the one hand, where experimentation is more prominent, and the laboratory activities of the natural sciences — botany, zoölogy, and biology — on the other hand, where accurate and minute observation is more emphasized.

This brings out the fact that the "laboratory method" does not necessarily involve experimentation, and incidentally refutes the claim often heard that a subject is not scientific or cannot be considered a "science" unless experimentation is carried on. In a certain sense experimentation, the "control of conditions or factors," is quite impossible in the most exact of all sciences, astronomy. What appears to be experimentation is really nothing more than the "control" of the instruments of measurement. All the rest of the work is pure observation, carried on with a wonderfully exact mathematical precision, so that more remarkable predictions are possible in this science than in any other. And exact predictions as to what will happen under certain conditions are the goal of every science. Only in astronomy all the conditions are assumed to be as fixed as the constancy of the universe.

**The laboratory method.** Under the "laboratory method," then, we may fairly subsume all objective observational exercises, or we may revise the point of view, as has been done in this chapter. We have been speaking of the laboratory method as a phase of the more general idea of teaching

by the use of objects, or by the process of observation. The reason for making the obverse suggestion was that teachers of more strictly academic subjects are beginning to recognize the values and possibilities of doing something like "laboratory work" in their subjects. Usually this means one or two things:

(1) The introduction of some form of illustrative reality — exhibits, models, products, and the like.
(2) Or it may mean a carefully planned series of direct instructions for the pupils' activities, for the solution of a problem, similar to that given in laboratory manuals, and having pupils carry out these instructions under supervision and with supplementary suggestions. In reality this is practically the equivalent of supervised study, as defined in Chapter IV (page 114).

There is no particular objection to this rather loose use of the term "laboratory work." More strictly it would be more appropriate if the latter term were used only if the pupil activity were actually confined to exact observation or experimentation. This context suggests one of the common misconceptions students have of an "experiment," due to an effort to derive a definition from the etymology of the word, "trying to do something," or often "trial-and-error" learning. To use the term "laboratory work" for such a type of learning is carrying the loose construction altogether too far.

But there is an advantage to be gained for a teacher of English or history, or any other non-science subject, in attempting to introduce the method and spirit of laboratory work into the class exercises, especially if a conscientious effort is made to combine both of the alternative conceptions suggested above — "illustrative realities," and a "carefully planned series of pupil instructions."

For example, in English composition work, in the teaching

of the proper form for business letters, a collection of models, with varying approved practices in address, superscription, subscription, punctuation, may be introduced. This may be accompanied by the assignment of definite letter-writing problems, with instructions for observation and production carefully worked out in individual assignment sheets or in a common assignment on the blackboard, to be carried out under supervision and with consultation during the class period. Several composition textbooks that carry out this "laboratory-manual" idea, are among the interesting developments in secondary School English Work.

## TEST AND STUDY-GUIDE FOR CHAPTER

### I. ENUMERATION

(2 points each = 6)

Name the three psychological principles on which the laboratory method is based.

1.

2.

3.

### II. ENUMERATION

(4 points each = 16)

State four purposes that should be prominent in laboratory work.

1.

2.

3.

4.

### III. ENUMERATION

(2 points each = 6)

Name three difficulties or dangers connected with the "object-lesson" method of teaching.

1.

2.

3.

## IV. ENUMERATION

(2 points each = 8)

State briefly four suggestions that should be observed in conducting field trips or excursions.

1.

2.

3.

4.

## V. COMPLETION

(2 points each = 30)

Fill in each of the blanks in the following sentences with a single word.

1. The earliest, and probably the greatest of the men whom Rousseau inspired was ....., who clearly deserves the honor of being recognized as the founder of modern educational ..... A fundamental principle of his method was that "education must proceed largely by ..... instead of by .....; the method of learning must be largely .....; real ..... and ..... must precede symbols and words."
2. It has come to be quite generally recognized by educators that even if there is some degree of ..... transfer of training in certain learning activities, a more helpful result may be made certain on the theory of ..... experience, or ..... of method.
3. True experimentation consists in ..... under ..... conditions; such ..... of the factors and the determination of results is made possible by accurate ..... and exact ..... analysis.

## VI. RIGHT AND WRONG

(2 points each = 34)

Indicate, by writing "R" or "W" before each of the following statements, whether it is "Right" or "Wrong."

1. Rousseau was the founder of modern educational theory.
2. Rousseau was a great teacher.
3. The laboratory method is a form of the Pestalozzian object-lesson method of teaching.
4. Verbal description is a more effective method of learning than sense impression.
5. Skills and habits cannot be learned by reading about them.
6. The method of learning should be definitely analyzed out of a learning process by the learners.
7. One of the chief aims of science laboratory work is to train the powers of observation.
8. Laboratory work is valuable for training in methods of observation.
9. General science courses should be controlled by the college preparatory aim.
10. An experiment is an illustration of principles by the use of real materials.
11. Fundamentally the same method is used in all sciences.
12. Scientific method would be impossible without mathematics.
13. Work in sciences in the high school should have the college preparatory aim rather than the practical aim.
14. Science-laboratory work has justified its claim for double periods for work.
15. All laboratory work must be in the nature of experimentation.
16. Prediction is the goal of all science.
17. The introduction of laboratory "devices" would be helpful in the teaching of English composition.

## PARALLEL READINGS

Colvin, S. S. *An Introduction to High School Teaching*, chapter XII.
Earhart, Lida B. *Types of Teaching*, chapter VII.
Foster, H. H. *Principles of Teaching in Secondary Education*, chapter XI.
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Twiss, H. R. *The Principles of Science Teaching*, chapter VIII.

# CHAPTER VIII

## REVIEWS AND REORGANIZATION LESSONS

Reviews and drills distinguished — Reviews not tests or examinations.

1. Purposes of reviews — To select and fix main points — Reorganization or revaluation of knowledge — To give an apperceptive basis for further study — For revealing weak points — Using to impress visitors.
2. The value and conduct of reviews — The value of frequent short reviews — How to conduct fixing reviews — Rules for.

Parallel readings.

**Reviews and drills distinguished.** In reviews, material once studied is gone over a second time for some definite purpose. The form of the review, that is, the degree of its intensity, is usually determined by the purpose for which the review is taken. What these purposes are will be taken up in the next section. The definition was given at this point to make the distinction between the review and the drill exercise, which is to be taken up in the following chapter. The drill involves continued repetition, with a view to practically a permanent retention of the material studied. The aim of the drill is to insure a practically automatic response; the aim of the review does not necessarily involve this.

**Reviews not tests or examinations.** The review lesson should not be thought of as in any sense a test or examination. Pupils should be made to understand this attitude on the part of the teacher clearly. Only those who are hopelessly wedded to the "recitation-testing" method in daily class periods will think of the review as being similarly an examination over an extended section of work. The review should rather be thought of as a preparation for a test. The same waste of time and inefficiency, but on a still larger scale than in the daily recitation-test, is present in the oral-review

test. The whole class can be tested far more thoroughly on the whole section of work by methods shown in Chapter XI. With the necessity of sampling a pupil's knowledge over the larger field, the chances for injustice or fortunate accident are even greater in the oral-review recitation. Pupils facing a review-test of this type are apt to feel at sea, especially if the teacher has, by past performances, shown that she is likely to introduce catch questions and unimportant details in the review-tests.

### *1. Purposes of reviews*

**To select and fix main points.** The most common purpose and form of the review is the going over large amounts of subject-matter for the purpose of *fixing* most important points, for at least a definite time of testing or examination. Reviewing for this purpose involves two activities:

(1) A rapid skimming of the whole field for the purpose of *selecting* important elements, unless this has been done in such a way during the first study that pupils already have this in notebook outlines; and,
(2) The effort to *fix* these outstanding items.

If the pupils have no record of this material from their previous study there will usually be two assignments for a review, with a class discussion on the first step, in order that all in the class may have an opportunity to compare their selective results with some common composite. This involves a valuable opportunity for experience in evaluating their judgments of what is important. If the ultimate purpose of the review is preparation for a test or examination, pupils should be given to understand definitely that they have the duty of "fixing" after the selection has been made.

The two steps are often combined in a single assignment process by giving the class a list of the questions that are to be given on the test or examination, and leaving the pupils

on their own responsibility for working out and fixing the answers. There is little objection to this method, if the set of questions covers the whole field quite thoroughly and is not a mere sampling. A more extended list of questions can be given than can be used in the test, and pupils can be given to understand that the test questions are to be chosen from this longer list. It is hardly necessary to add that faith must be kept with the pupils, if such an arrangement is announced. It should also be pointed out that, if this method is used, the test questions must really involve a review plan, and must not resort to obscurities or "catch" problems.

One of the chief values of such a review is the giving of a special opportunity to the slower pupils to get elements they were unable to handle on the first study. The review is undertaken with the advantage of meeting problems with a somewhat enlarged apperception, and matters only half comprehended on the first study can now be more easily taken in with the added knowledge that has come with later contacts. This method helps to serve a group which cannot be kept at each step until mastery is perfect, because of the conditions of inequality of ability in the classifications that are necessary in mass education.

**Reorganization or revaluation of knowledge.** A second purpose of reviews is that of reorganization or revaluation. When a large field of content material has been covered once, it may be gone over a second time or repeatedly from different points of view, either for the purpose of building up new association-groups, for fixing data by possible comparisons or contrasts, or for giving a new — usually a lengthened — perspective.

This method may be illustrated in much of the geography work. Children in the study of Europe usually take up the matter for the first time by countries — the conventional method of presentation in the textbooks. For England,

France, Germany, and most of the other countries they take up, in succession, the physical characteristics, the political organization, possibly a bit of the history, the leading industries, the prominent cities, and so on. After the study of the continent has been completed, in this manner, a series of reviews on each of these topics makes possible a reorganization that will bring together related facts for the different countries with reference to each of the topics indicated. The "type" studies in geography, as worked out by the McMurrys, and referred to in the chapter on the inductive-development lesson (page 83), illustrate some of the effective work that is possible in this type of review. The use of the inductive principle, that is, the working out of explanatory generalizations from the scattered data, is one of the most important that has been achieved in elementary teaching technique, and has done much to put the art of geography teaching on a higher plane, for several decades, than any other elementary-school subject.

ASSIGNMENT: Draw up a plan for a "reorganizing" review in some selected section of a particular textbook; for example, a history.

**To give an apperceptive basis for further study.** A third form of review serves a less formal purpose — the selective recall of known materials for bringing to the minds of the pupils the necessary apperceptive foundation for the study of new material. This has already been pointed out (pages 76–78) as a characteristic phase of the "preparation" step of the inductive-development lesson. Usually such a review is made informally in the class period, but it must nevertheless be carefully planned from the point of view of proper selection of elements. Only such items as are necessary for the understanding or undertaking of the new work must be selected for such reviews. Logical completeness of past

relationships may be ignored. If the concept of a compound-complex sentence is the new idea to be taught, it is necessary to review the concepts of the compound and the complex sentence; the simple sentence need not be brought in, and a review of declarative and interrogative sentences would also be out of place.

But such "apperceptive" reviews are not necessarily confined to the inductive lesson. If a class period is to be given to a series of reports or topical recitations in a history class, the outline or core, as gained from the textbook study, may be reviewed briefly as a unifying background. This may sometimes be advisable as a unit of work at the beginning of the period; it may be introduced piecemeal between the successive reports; or it may be made after all the reports have been given to lend them a final perspective. Either the first or second method is probably preferable as a general practice.

Again, pupils should be encouraged, more than is commonly done, to review for themselves the material of the immediately preceding lesson or lessons before beginning a new assignment, if it is related to the new assignment in such a way as to make the recall of such material helpful.

**For revealing weak points.** A fourth form of review may be for the purpose of pointing out weak places in learning, a revealing test. Such exercises will usually be surprise affairs, and are intended to show pupils important elements in their past work that have not been as effectively fixed as the teacher expects. This type of work not only serves the direct purpose of revealing their weaknesses to the pupils; it also constitutes an effective form of motivation for more careful and thorough work, and for frequent self-reviews, if the pupils know this method is a part of the teacher's habit of work. This type of review, with its values and the psychological justification, will be taken up more fully a little further on in the chapter.

Another form of this review is that often followed by teachers *after tests* have been given. The tests are given with a double purpose — to evaluate the work or grade the pupils, and to discover their weak points or misunderstandings. The written test, then, serves formally to attain the revelation that was suggested as the motive of the review before testing.

**Using the review to impress visitors.** A final purpose for which reviews are sometimes used is an unworthy one, and must be noted merely as a matter of warning. Teachers often resort to the review to impress a visitor, especially a supervisor. Such a refuge does not impress, unless it be with the thought that the teacher is afraid to go on with the regular work that was in progress when the visitor enters. In a sense such demonstrations are not genuine reviews. They are merely recitation tests over a large field, with a selection of items that are probably better known by the pupils.

ASSIGNMENT: What is the type of review involved in the "Review Problems," given at the end of this textbook?

ASSIGNMENT: Write a section that you think would be suitable for this part of the chapter on "The Difficulties or Dangers Connected with Reviews."

### *2. The value and conduct of reviews*

**The value of frequent short reviews.** The importance of frequent, brief reviews, perhaps daily, both in study and in recitation, is frequently overlooked, although the value of *early* reviews is one of the best established facts in the psychology of learning. Very definite studies have been made by psychologists on the rate of forgetting. These studies have shown, most convincingly, that a few minutes of review within the first day or two after original learning pays bigger returns in the way of permanent retention than many times as much effort expended in the original learning.

We may illustrate this concretely. If one spends five minutes to-day in reviewing a poem which it took an hour to memorize yesterday, the review will help hold a larger percentage of the total for a month or so than the original hour would fix. True, the five minutes would be of little value without the hour of original learning; equally significant, the hour of original learning is of little permanent value without the occasional few minutes of review.[1]

**How to conduct fixing reviews.** More definite directions should probably be given for the reviews that are intended to fix the more important elements of a subject.

*a. Give "organizing" questions*, expecting both extensive and intensive preparation. The questions will first have the intention of directing pupils to select the main points of a general topic. Several typical illustrations may be given. In a history review, these organizing questions will be of this type:

(1) What were the chief phases of a particular movement?
(2) Who were the leaders or prominent men in the era, and what part did each play?
(3) What were the contributing causes of a certain important event or movement?

Or assuming the section on European geography, previously referred to, we would formulate questions such as the following:

(1) Be able to name and locate the principal rivers of Europe; the principal cities.
(2) What industries are important in most of the countries?
(3) What is the leading industry of each country?

In working out answers to such questions it will often be helpful for pupils to make written outline answers to the

[1] See a synopsis of such experimental studies in Starch, Daniel, *Educational Psychology*, pages 156–58.

questions. This will make possible a checking up of individual pupil efforts with those of others in the class, or will give the teacher an opportunity to set the pupil straight on material not clearly grasped.

The second phase of such an assignment must not be overlooked. Pupils must be instructed to fix these outline answers, as well as make them, unless it is understood that a class discussion for purposes of comparison and correction is to precede this.

*b. Give sampling short tests*, especially as surprises, as a helpful means of motivation and as a good background for a review of essentials, with an assurance that each pupil will have been forewarned as to his particular needs for the subsequent fixing review. The form of tests, so as to make them economical of class time and in correcting, will be suggested in detail in Chapter XI.

*c. The oral class review*, with coöperative contributions, may either follow the preparation of pupils on organizing questions outlined above, or it may be undertaken more informally without that preparation. The discussions may be impromptu, with helpful contributions by the brighter or more conscientious pupils, but the slower pupils will also profit by such an exercise. The results must be such as to be recognized clearly by the pupils, either in something like several repetitions, or in an exact summary restatement by the teacher, or in condensed outlines on the blackboard for pupils to jot down in their notebooks.

Such class discussions must adhere closely to their original intention; they must move progressively and efficiently over the large field marked out; and they must not be allowed to fall into the wasteful shoals so common in recitation periods. This is not the time for testing; no review values are gained if the discussion halts to "show up" too many of the poorer students. Let this be reserved for the following test itself.

*d. Teach pupils how to "cram."* This practice is often disapproved. But usually certain conditions of previous neglect are then taken for granted. The ability to cover a large amount of ground, with the intention of using the results for an emergency, is really worthy of some practice. There is an element of efficiency in the method, by way of high-pressure attention and the devising of schemes for fixing essentials, that all should learn with a view to probable use in further school work, or in life by way of preparing for emergencies. Pupils should be taught the technique of making such reviews efficiently, somewhat along the line of method that has been suggested in the previous sections.

*e. Plan a program of reviews.* In planning the semester's work the teacher should definitely commit herself to a program for reviews. These should be set for all the natural large divisions of a semester's work, each chapter or a set of chapters, depending on the grade of advancement of the class and the character of the textbook. In addition to this there should be frequent, shorter reviews as particular occasions seem to warrant them. The reasons for the latter, and also for encouraging pupils to do considerably more of this type of work independently, have already been stated.

(The Tests on this chapter have been combined with those of the following chapter.)

## PARALLEL READINGS

Bagley, W. C. *The Educative Process*, chapter XXII.
Earhart, Lida B. *Types of Teaching*, chapter XIII.
Strayer, G. D. *Brief Course in the Teaching Process*, chapter IX.

# CHAPTER IX

## SKILLS, HABITS, AND DRILL

A new attitude toward drill — The value of skills and habits — Types of skills.

1. Physical or motor skills — Skills *vs.* habits — Skill in handwriting — In typewriting — Place of, in manual training — Skill in play, games, and gymnastics.
2. Automatic fact associations — Memorizing fact associations — Combination skills.
3. Mental-method skills — Importance of various types of skill in reading — Beginning work in reading — Oral control — Eye-movement control.
4. The laws of habit formation — The correct start — Attention to repetitions — No exceptions — "Over-learn" the skill — Start strong — Gratuitous practice for development.
5. Practical teaching suggestions with reference to drill work — Plan your drill work — Plan early in semester — Material selected for drill must be worth while — Motivate your drill — The concept and ideal of efficiency — Vary the methods and motives.

Test and study-guide for Chapters VIII and IX. — Parallel readings.

**A new attitude toward drill.** At present the attitude of many teachers toward drill work is undergoing a wholesome change. We are coming back to drill, which, until recently, and for several decades, was regarded as old-fashioned and almost as out of date as corporal punishment. The neglect of necessary drill work has been one of the bases for just criticisms of the "soft pedagogy" in the schools. The newer educational psychology, however, is giving us an analysis of school objectives which leaves us no alternative, in some subjects.

The school has the task of increasing the pupil's stock of usable knowledge, but it also has to train him in certain skills, habits, abilities, and attitudes. All material which involves skill or habit, which necessitates the making of a

reaction, or the performance of a process, automatic, that is, wholly or largely uncontrolled by consciousness, must be acquired by practice, constant repetition, and drill, and can be acquired in no other way. There may be some help in the practice by understanding the process, or the work may be made more agreeable or efficient by an appeal to certain attitudes, but the necessity of repetition — to the point of "over-learning" — cannot be ignored. While the word "drill" has acquired certain unpleasant associations, as the compulsory movements under direction of a superior, the fact remains that skills and habits can only be learned by constant repetition and such practice need not take the disagreeable form of compulsion.

The definition given of drill in the previous chapter, to distinguish it from review work, may be repeated here. *Drill is a continued repetition of any learning process, with a view to practically permanent retention, or automatic response.*

ASSIGNMENT: Find several statements or arguments for or against drill work in school. Consult especially the indexes of educational books dealing with psychology or methods, and the bibliographies giving references to some of the periodical literature. Look in the indexes of the Proceedings of the National Education Association. Collect extracts from several addresses that show trends 15 or 20 years apart.

**The value of skills and habits.** Useful skills and good habits are an essential in efficiency for all of us. Much of the world's work must be done by skilled hands and minds, and can be done only by such dextrous, automatic performances, controlled by proper ideals of pride in workmanship and of worthy social service in daily occupation. Too much emphasis has perhaps been put on the need for skill in manual work, and too little on efficient, ready technique in mental work. The training by drill must not be confined to the shops and laboratories. It must not be degraded as a form

of learning especially adapted to the slower mental types who will probably not continue intellectual pursuits. The noblest arts and professions place a high premium on manual skill, and the humblest mental worker needs the same type of training for thinking that he needs for trade preparation. A priggish avoidance of drill because of the associations with physical or motor skills is quite out of place in a theory of instruction.

The major part of an adult's day, in his work, his reading, his conversation, his recreation, is spent on the moron level as far as necessary intellectual effort is concerned, that is, we can make most of our necessary mental reactions in life on the level of twelve-year-old intelligence. Much of this apparent lack of necessity for higher thought is probably due to the fact that so much of the day's activity may and should be reduced to the automatic level. Reducing activities to the level of skills and habits makes for economy and efficiency, as well as for a release of mental energy for more useful possibilities.

A realization of this economy of habit should lead the teacher to make the most careful analysis of subject-matter and processes in every school subject that she teaches, in order that she may isolate the items suited to skill or habit development. For these, effective drill programs must be carefully planned. The wastefulness in neglecting drill phases in school is painfully apparent to teachers of advanced arithmetic, when dealing with pupils who have not been properly trained, to automatic readiness and one hundred per cent accuracy, in the skillful use of the tables and ordinary number-combinations. In content subjects the same inefficiency in technique of study is apparent in high-school and university students. Wasteful study habits again are due to lack of drill, as well as a lack of an understanding of economical and effective methods of work.

**Types of skills.** The various skills that are prominent in the school subjects may be classified into three distinct groups:

1. Physical or motor skills;
2. Automatic fact associations, or memorized subject-matter; and
3. Mental-method skills.

Each of these requires some explanation and illustration. The illustrations may be drawn in some detail, from particular elementary-school subjects. Incidentally these illustrations will show how the analyses of learning processes by educational psychologists have contributed greatly to efficiency in teaching and learning.

### *1. Physical or motor skills*

**Skills *vs.* habits.** This type of skill is specially prominent in writing, typewriting, manual training, and physical education. The activities in such subjects are not classified as physical skills because they are exclusively motor. Mental activity is more or less prominent in such processes, but it finds expression in the coördination of mind and body, with the accurate physical reaction or response prominent. Some would classify habits in such a way as to reserve the term "skill" only for activities of this type, in which physical activity is prominent.

A formal definition may help us in the explanation and comparison. Skill has been defined [1] as:

> The familiar knowledge of any art or science, united with readiness or dexterity in execution or performance, or in the application of the art or science to practical purposes; power to discern and execute; ability to perceive and perform; expertness; aptitude; as, the *skill* of a mathematician, physician, surgeon, mechanic, etc.

[1] *International Dictionary*

In comparing skill with dexterity, the following discrimination is made: [1]

> Skill is more intelligent, denoting familiar knowledge united to readiness of performance. Dexterity, when applied to the body, is more mechanical, and refers to habitual ease of execution.

Habit is defined [1] as:

> The involuntary tendency or aptitude to perform certain actions which is acquired by their frequent repetition . . . a disposition or tendency leading us to do easily, naturally, and with growing certainty, what we do often.

While it is apparent that skill and habit have elements in common in that the ability or tendency to respond is due to frequent repetitions, the two do not necessarily have sufficient common characteristics to make it advisable to subsume one under the other. There are habits which have none of the fundamental qualities of skill about them. In fact habits may easily be conceived that are highly unskillful. For example, a man may have a very unskillful way, or habit, of lacing his shoes, or using a tool that is important in his trade. Again we may speak of skills that are not at all followed as habits.

We should rather think of skill as a form of activity in which one has become expert, dextrous, or efficient by practice or repetition; it is a term always complimentary to one's mental control over the motor activities. But there is no necessary moral approval involved; a burglar may be skillful in some of his criminal activities. Many habits involve no such compliment to one's physical or mental controls.

Another reason for the confusion or frequent association of skills and habits lies in the fact that skills may, and habits always do, attain a stage of automatism, a condition when the activities involved are not consciously controlled. A

[1] *International Dictionary.*

prominent element in most skills is the quick or accurate response, or both, to the stimulus, or the ready, easy sequence of responses, if a series is involved.

**Skill in handwriting.** Formerly systems or methods of teaching handwriting consisted principally of copybooks, with models of varying degrees of slant and styles of letter-formation, which were to be *imitated.* Such methods were in time supplanted on the theory that handwriting thus became a sort of laborious and slow method of drawing, and that the copybook model at the top of the page almost naturally slipped out of sight as the pupil worked down the page, resulting in his imitation of his own gradually deteriorating lines.

The present-day systems of teaching handwriting are consciously based on the theory that writing is a motor skill, that mastery involves the learning, to a stage of practical automatism, of a certain coördination of bodily position, free-arm movements, and finger controls. Each of these phases of the skill has been carefully analyzed out of the total learning situation, so that teaching attention may be distributed to these elements in practice. In the earlier stages of learning little emphasis is put on resulting product; attention is centered on the process or the correct performance of the coördinations involved.

**Skill in typewriting.** The importance of skill in typewriting can best be seen in a comparison of the "self-made" operator and one who has thoroughly mastered the touch system. The former is never freed from the necessity of readjusting his divided attention, now to his copy or his thought, now to the machine, or particular places on the keyboard. The skilled operator has trained himself to react directly and in rapid succession by the sense of feeling or the kinæsthetic sense to the positions of all the symbols of the keyboard. There is a much higher degree of automatism, and the cir-

cuit of stimulus-response has been made a short-circuit which has eliminated the eye-search for the keys entirely, so that the work can even be done without symbol marks on the keys.

**The place of skill in manual training.** Many teachers make the unfortunate mistake of thinking of manual training, or any form of shop work, as merely manual. They assume a rather supercilious air of superiority for their own work of a more academic type, and advise manual-arts work for boys who are mentally slow, almost in a spirit of condemning such to an inferior type of learning activity. This attitude is sometimes accompanied by an equally erroneous notion that if a boy cannot do well in academic work he will probably do quite well in manual work. In other words, an inverse or negative correlation between the two abilities is assumed, while the reverse is probably true. Then, too, the elements of planning, reading, and mathematical computation as important phases of the manual arts are quite ignored.

There is, of course, some excuse for this misconception, because of the prominence of physical skills in manual training and trade courses. The mastery of every tool involves a separate skill, and many of the processes involved in construction, fitting, and finishing equally require training in skills, not to mention the operation of such machinery as may be used. Much of such learning has as its first step the imitation of an expert, the teacher. Because this observation of objective materials and processes, this learning by imitation, is a more easy and simple method than the learning through abstract symbols, pupils with limited mental ability can meet with some success in the manual subjects. There may be the additional stimulus to effort in the instinctive interest in real or material things.

**Skill in play, games, and gymnastics.** Skills of different

types are involved in the field of physical education, in the games and sports, the gymnastics, calisthenics, and folk-dancing. Some manual skills are involved in some of the games, but one valuable feature of all such is the prominent call for the training of the larger muscles and for the skillful coördination of the whole body.

In this connection we may also note that motor or physical skills may involve group coöperation in drills, notably in calisthenics, gymnastics, folk-dancing, and maneuvers of various types. This is a distinctive form of skill from most of the individual skills that have been involved in the other illustrations given so far.

ASSIGNMENT: Make a list of all the physical "skills" you have learned, in or out of school. Was any one of them acquired efficiently? Whose fault was it that you did not learn any one of the skills in your list more quickly or more thoroughly? Save your paper for a future assignment.

State one or two "habits" you have that are not "skills."

### *2. Automatic fact associations*

**Memorizing fact associations.** The second type of school activity involving learning by repetition or drill is the making of certain fact associations automatic, an activity commonly designated as memorizing. There are varying degrees of intensity or exactness in such memorization work. In history and geography we are familiar with the memorizing or fixed association of isolated pairs of facts, such as dates and events, or states and capitals, or an extended sequence of facts that are merely related in some accidental succession, such as a list of presidents or rulers. A more advanced type of memorization, because some element of thought usually enters in, may be illustrated by a recital of the thought of a passage, the principal items in a narrative, or the successive steps in an explanatory or argumentative

passage. Sometimes the learning of definitions or rules would fall in this type, and it should always be of this character.

Often, though, such memorization must rather be described as the mere learning of more or less meaningless symbol associations. Rules are learned as a sequence of words that cannot be applied, because the abstract verbal symbols involved are not fully understood. Such memorizing of verbal sequences is also too often permitted in the rote learning of poetry, when adequate comprehension is not insured by proper preliminary study of the passage.

**Combination skills.** Certain school activities combine skills of the two foregoing types — motor skills and automatic fact associations. In learning to spell words correctly there is a large element of mere memorization of symbol, or letter sequences. There is some thought control in words that are spelled phonetically, and rarely some applications of general rules. But with the large number of exceptional, non-phonetic words in English, considerable drill has to be expended in fixing the proper letter combinations with certain misleading sounds and meanings. While the fixing of symbolical associations is most prominent in the spelling skill, educational psychology has also shown that there is an element of motor control, largely resident in the vocal organs, and exercised almost unconsciously in most of us.

A similar analysis could be made in almost every detail for correct or grammatical speech and writing. The ear or sound learning and control is more prominent; rules probably play a more important part; and vocal-motor elements may also be analyzed out of the learning and expression activities. But here also the element of correct symbol-associations is the most important element in acquiring language mastery. Drill and repetition of correct forms must be prominent in the formation of language habits, and espe-

cially drill of the ear-training type, for it is by that agency that correct as well as incorrect forms are largely fixed.

### *3. Mental-method skills*

In making the foregoing analysis of various types of skill it was shown that in some of the school subjects, such as writing, typewriting, manual training, domestic science, and physical education, the physical or motor type was a prominent essential in the learning of these subjects. In important phases of other subjects, notably arithmetic, geography, and history, or in any piece of memorization, the making of fact-associations automatic was shown to involve drill. Again, in spelling and language work, combinations of these two types of skill were shown to be prominent factors in the mastery of these subjects.

In illustrating the third type of skill, the ready use of mental-methods, we may make an analysis of reading, in which this type is prominent, but in which we also find important phases of the other two types of skill.

**Importance of various types of drill in reading.** One of the great contributions of educational psychology to the art of teaching, in recent years, has been the analysis of the learning processes and activities in the various school subjects. By such analyses certain important processes have been so isolated that in this simplified form experimentation was made possible. Such experiments with highly essential phases of the learning processes have resulted in valuable practical contributions toward promoting efficiency in both the teaching and learning. This may be illustrated in connection with the various phases of the work in reading.

**Beginning work in reading.** In the earliest phases of learning to read pupils must have constant drill to fix the associations between ideas, represented by word-sounds, with written or printed forms of the word-symbol. A con-

siderable stock of ideas associated with word-sounds has been acquired by the child during the years just before commencing school, and this stock is gradually enlarged by new experiences and exercises in vocabulary building. The learning of the reading process proper involves the fixing of the association of these ideas with the visual symbol. Whether this is done by the letter-spelling, syllabication, phonogram, whole-word, phrase, or sentence method is immaterial at this point. The process of associating symbol and idea is practically the same, and involves constant repetition until the association is fixed to the degree of an automatism. As this stock of fixed associations increases, the reading process is reversed and begins to consist of getting new ideas from such symbol combinations.

Up to this stage of learning the reading process the necessity for drill on the physical or motor skill has not become very prominent, but as soon as the making of association-recognition and responses begins to become ready, two important physical skills begin to demand attention. One of these is the process of pronunciation and enunciation in oral reading; the other is the control of eye-movements. These two motor skills have to be developed at about the same time, according to the latest findings of the experimenters in reading. Until very recently the necessity of improving control of the eye-movements in reading was unknown. The studies of educational psychologists who have revealed the importance of this skill have also shown the danger of prolonging the drill in pronunciation, and other elements involved in oral reading, for too long a period in the child's development.

**Oral control.** Beginning as soon as the child has formed enough of the more common word-idea associations to read, oral reading becomes necessary in order that the teacher may give necessary instructions in correct pronunciation, enun-

ciation, and other features involved in indicating meaning. How important this physical skill, the control of all the vocal organs, is may be seen in the contrast presented by a child who reads correctly and fluently and the child who has any of the more common speech-defects, such as lisping, stuttering, and stammering. The difficulties encountered by a foreign adult, often insurmountable, in learning to pronounce correctly, further illustrate the significance of these skills, which are so generally attained to a practical degree of perfection that their importance is often overlooked. The fact that most of us attain these pronunciation and enunciation skills to only a practically satisfactory degree of perfection may likewise be seen in the large number of niceties we violate when the study of orthoëpy is taken up in adulthood.

**Eye-movement control.** The second phase of motor skill involved in the learning of reading, the control of eye-movements, has recently been shown to be one of the most important phases of the reading ability. The invention of reading tests, in which an accurate record could be made of speed or rate of reading; the experimental analyses of the physiology of the silent-reading process;[1] and the experiments that have shown how large a percentage of improvement in rate of silent reading is possible even for educated adults[2] — all tend to show the importance of training in proper habits in this physical skill. The fact that this skill is based on an inconspicuous reflex in the movements of the eyeball accounts for the fact that this element in reading skill was only recently discovered.[3] But since its discovery,

[1] For the effect of this on method see Gray, William S., "Principles of Method in Teaching Reading, as Derived from Scientific Investigation"; in *Eighteenth Yearbook of the National Society for the Study of Education*, part II, pages 26–51.

[2] Stone, C. W., "Improving the Reading Ability of College Students"; in *Journal of Educational Method* (September, 1922), pages 8–23.

[3] See Huey, E. B., *The Psychology and Pedagogy of Reading*, for an extended account of the experimental discovery of this.

the matter has been given such intensive study that the results are among the most important that the psychological laboratory has given to education.

It was intimated that these two motor skills, oral control and eye-movement control, were to be developed at the same stage, and that drill in the former should probably be discontinued after a few years. This is due to the fact that the oral-reading exercise begins to interfere with improvement in the more important skills involved in silent reading, efficiency in which is far more essential. Studies made in the University of Chicago educational laboratories have shown that at about the fifth-grade level the skill in the control of the eye in rate of reading begins to exceed the rate of vocal-organ coördinations in oral expression. Beyond that point the further practice of oral reading, in any great amount, will interfere with improvement in the rate of silent reading and thought-getting to such an extent as to make the whole process an irksome one that may seriously affect the child's whole reading future.

Practice in the third type of skill involved in reading, the acquiring of mental-method technique of various sorts, should have been started in a limited way in the intermediate grades, and will continue to offer opportunities for practice and improvement as long as school life continues, even through the university. These mental-methods, such as skimming, outlining, getting the paragraph topic, the use of indexes, the art of bibliography, and others have been fully described in Chapter IV, dealing with Supervised Study.[1]

### *4. The laws of habit formation*

The attainment of skills of various types in all of these school subjects involves some or all of the so-called laws of

[1] See especially pages 90–96.

habit formation. These laws are rather a set of common-sense psychological principles that have largely been evolved empirically, although some are beginning to be reinforced by experimental data. These principles were first announced by James, and have been modified and amplified by other writers until now they have become such a common tradition in the manuals of general psychology and the introductory textbooks in education courses that any extended discussion of them is probably unnecessary. Their special reference to the learning of some of the skills that have been mentioned may, however, be illustrated. A few of the important principles will be stated.

**Get the correct start.** A great deal of attention must be given to "form," at the time when the learning of a skill is started. A detailed analysis of every phase of a complicated movement should be in the mind of the teacher, and the learner should be made conscious of these elements. In the case of motor skills, teaching by model or learning by imitation is possible, and is far preferable to learning by "trial and error." By the latter method the learner is too apt to be satisfied with a partial success, and the practice is then continued in the "form" in which such partial success is attained. This is strikingly illustrated in the case of the self-taught typist. One who has learned typewriting by such trial-and-error or hunt-and-peck methods has much greater difficulty in learning the touch system later, because there is first a series of incorrect habits to be unlearned which interfere with the learning of the reactions in the more efficient system. The same is true of the skills and habits involved in writing, spelling, and language mastery. In the case of the last of these the school is at a serious disadvantage because the incorrect habits get such a considerable start before the child comes to school, and also, as we shall see in following sections, because there is a continuous and even

more considerable exposure to the fixing of wrong speech-habits in the out-of-school associations.

ASSIGNMENT: Show, in the same way, from your own experience, that the learning of a skill by imitation is also more effective and economical than learning it from abstract verbal directions.

Where the school starts the process of learning skills it is important that the law of correct habit initiation should be strictly observed. The correct, efficient technique may be more difficult and complex at the beginning, and more discouraging as far as immediate results are concerned — the experiences one has with "systems" of handwriting and typewriting illustrate this — but where such systems have been established for a skill, by professional analysis and experimentation, they must be followed conscientiously. As Colvin well says: [1]

It is particularly essential in the beginning of all school activities that the teacher see to it that the pupil's attention is upon that part of the learning which is essential for the correct formation of the habit to be desired.

**Be attentive in each repetition.** The importance of this principle has well been illustrated by the challenge that has been given to the old adage that "practice makes perfect." The revised form of the adage should read, "Correct practice makes perfect," while, obversely, incorrect or inattentive practice results in either incorrect or uneconomical learning. The former is readily seen in the case of language learning. It was suggested in the previous section that practice in speech does not make for correct language mastery. The greatest failure of the schools, the ungrammatical graduate, is a product of a double training. The teacher has the pupil under her influence only a few hours each day,

[1] Colvin, S. S., *The Learning Process*, page 65.

while the repetitions of language forms go on the rest of the day without the pupil's giving any attention to the matter.

This situation ought to demonstrate to us quite clearly that in many of the skills and habits, which we have to deal with in the schoolroom, the responsibility has to be assumed by the learner himself to insure any satisfactory results. The problem often has to be attacked as a problem in getting the right attitudes. The reader of compositions knows that the incorrectness of grammatical, spelling, and punctuation elements is, for most pupils, not a matter of ignorance or lack of understanding. Most errors of this sort in a composition can be found in their correct forms more often in the same composition.

All this is the evidence of incompleted skills, to the repetition of which no attention is being given. In other words, this inattention is an attitude of carelessness on the part of the learner. The teaching problem becomes one of making the pupil want to care, or to give attention to the details of his expression habits. This raises the problem of drill motivation, which is to be taken up as a separate topic later (page 247 f). Where the proper attitude cannot be secured, where the child refuses to take the responsibility for attentive correct repetition, the problem for drill becomes a more serious one. Fortunately the attitude is not enlisted on the opposing side either; the child is not willfully incorrect in his spelling and grammar. He is neutral, inattentive to right or wrong; he does not care. Then it becomes a question of preponderance of correct experiences and expression; so much drill must be given that the right supplants the wrong as a more ready and easy reaction.

**Permit no exceptions.** An interesting illustration of the importance of this rule could be worked out in a discussion of the topic, "Why do most systems for teaching handwriting fail?" There is no fault in the theory of these sys-

tems, and there is no doubt that remarkable results can be secured by a few months of systematic training by any adult, but the imperfect result of years of such training in the elementary schools is largely to be attributed to the fact that the correct practice in the proper combination of motor skills involved is only insisted on for a half-hour or so daily during the handwriting practice period. All the rest of the day's writing work is an exception or contradiction, to a greater or less degree, of the correct form.

This is due to two natural practical difficulties. The teacher cannot supervise all writing work as if it were a writing lesson, and there seems to be a natural perversity in most children to do their ordinary writing work by some cramped, inefficient way they have acquired "out of bounds." One may meet such a situation with a cynical helplessness, or a counsel of perfection. But the teacher may not ignore and neglect the effort to implant correct habits; nor can she, in some of the most vital social skills, hope to observe this law of "no exceptions." She cannot turn the whole day and every day into a writing lesson. She cannot put gags and ear-muffs on the pupils when they leave the schoolroom to prevent the saying and hearing of incorrect speech forms. She must choose a happy mean between helpless despair and impossible perfection. She must do all she can to get the correct form practiced, and to get pupils to take the responsibility of correct attitude; but she must also learn to be content with limited success.

**"Over-learn" the skill in most cases.** The value of over-learning is one of the best authenticated rules, as far as experimentation is concerned. The law applies, perhaps, more distinctively to memorization and to some motor skills. The importance of "over-learning"; that is, of learning beyond the point where the skill is just attained or the memorized material can be recited the first time, has as its

reciprocal what has been called the law of forgetting. The rate of forgetting is very rapid in the period immediately following the learning. One of the experimenters, in learning nonsense syllables, is reported to have forgotten as much in the first twenty minutes as in the following thirty days; another, in the remembering of a poem which had been learned to the point of two perfect repetitions, found that as much was forgotten in the first two days as in the next twenty-five days.[1]

In evaluating the results of such investigations Starch makes the following practical deductions:

> The experimental work on forgetting is too limited as yet to permit of much definite application in the practical procedure of learning school material. The one suggestion that may possibly be made would be this: Since the rate of forgetting is very rapid at first and more gradual later on, it probably would be highly advantageous to have relearning of a given material come very frequently at first, and more rarely later on. Thus the facts of a lesson in history or the newly acquired words of a spelling lesson should be reviewed the next day, or perhaps preferably on the same day, then again two or three days later, and then a week or ten days later, and so on.

**Start strong.** This principle is somewhat related to the first that has been given. The first had special reference to the "form" of the activity; this has in view the attitude or intent to learn. As James expressed it:[2]

> We must take care to launch ourselves with as strong and decided an initiative as possible. Accumulate all the possible circumstances which shall reinforce the right motives . . . envelop your resolution with every aid you know.

**Gratuitous practice for development.** This was one of James' original three rules of habit-formation, and was intended more directly to refer to habit in the moral realm of

[1] Starch, D., *Educational Psychology*, page 158.

[2] James, Wm., *Principles of Psychology*, vol. I, chapter IV, page 123.

activity, although its implications for some of the types of skill that have been suggested will be evident, as, for example, in the field of language mastery. In summary this principle was originally stated as follows:[1]

> Seize the very first possible opportunity to act on every resolution you make, and on every emotional prompting you may experience in the direction of the habits you aspire to gain. . . . No matter how full a reservoir of *maxims* one may possess, and no matter how good one's *sentiments* may be, if one has not taken advantage of every concrete opportunity to *act*, one's character may remain entirely unaffected for the better. . . . As a final practical maxim relative to these habits of the will, we may, then, offer something like this: Keep the faculty of effort alive in you by a little gratuitous exercise every day.

ASSIGNMENT: Review, and, if you think it worth while, in view of the discussion on "The Laws of Habit-Formation," rewrite the last part of the paper you wrote on "Physical Skills," in a previous assignment in this chapter.

### *5. Practical teaching suggestions with reference to drill work*

**Plan your drill work.** Select the elements for drill or memory work as part of your semester planning. An effort has been made, in a considerable part of this discussion of drill, to show how prominent the skill-types of learning are in almost every elementary-school subject. Further illustrations could be added for most of the high-school studies. The illustrations given were merely general suggestions, and were not at all intended as an exhaustive list involved in the subjects discussed. Such lists are beginning to be made available in the Manuals dealing with the special methods of teaching the various subjects. One of the important pieces of planning a teacher should do at the beginning of each semester is the drawing up of a list of items that will require

[1] James, Wm., *Principles of Psychology*, vol. I, chapter IV, pages 124–27.

the use of drill methods. For each a scheme of motivation should be worked out, and a systematic search and record of suitable devices should be accumulated to make such drill work interesting and effective.

ASSIGNMENT: Select a semester's work in some school subject, and outline a plan of drill topics. For one or several of these make a list of motivation devices, or describe some drill game you would use.

**Plan some drill work early in the semester.** Opportunities for drill work are so plentiful in every school subject that but little adjustment of a semester's program will be necessary to introduce some drill work early in each semester. This is advocated for the psychological or "moral" effect it will have, especially on a new class. It will give the pupils an early impression that the teacher means business, and that she expects earnest work. It will be much easier if the start is made with this attitude in the minds of the pupils; its wholesome effects will outlive the period of drill.

**Material selected for drill must be worth while.** The pupils, too, should be helped to realize the values as fully as possible. Selections for memorization may be interesting, even if they are trivial; but they need not be uninteresting because they are worth while, worth knowing for a lifetime. If the choice lies between the worthy and the trivial, the decision should not be hard to make. Material that is memorized should have enough in it to grow on the learner as he memorizes the lines. It is wholly indefensible to require a pupil to spend hours on the learning of something that has no permanent values.

We have here another illustration of the fact that we cannot always move in the child's childish sphere of interests as a basis for the selection of subject-matter. This is true in the field of memorization, but even more so in regard to

much of the other material that must be mastered by the drill method, notably in some of the elements that have been suggested as skills or habits in writing, spelling, arithmetic, and language work. To try to show the value of these to the pupils, as a part of the natural motivation for drill, the teacher will have to inform herself fully as to their possible social uses. The more immediately and the more evidently these can be related to the child's present needs, the more effective such motivation will be, but there need be no hesitancy in trying to get pupils to understand as fully as they can the great practical importance of such elements in adult life.

**Motivate your drill work.** Motivate drills by extrinsic interest if necessary, but only if necessary. If intrinsic interest is present, or can be aroused, it should be used. If it is possible to show a pupil the natural value or advantage or his need of the skill, this motivation must not be neglected. Again, drill itself, as drill, has fortunately considerable attraction for most children. Repetition of familiar movements or of familiar ideas has some sort of fascination, and, as the consciousness of skill in the activity itself develops, there is an accompanying feeling of pleasure, satisfaction, and pride which will motivate the repetition. The ability to solve a puzzle the first few times does not end a child's interest in it. A large part of the secret of craftsmanship lies in this satisfaction in skills attained, as well as in contemplation of the product, whose art to the creator lies in the recollection of the processes rather than in external standards of beauty and use.

If, however, such intrinsic interests do not appeal as a motivation for practice and drill, there are a number of instincts to which appeal may be made, either to get the repetitions started, or continued with attention and interest. Dr. Starch has given us a critical summary of the possible

values of instincts in school work, especially as motivating the learning processes. He first shows [1] that the number of instincts, in a list of forty-two,

which may be directly and concretely appealed to in the learning of a school subject is relatively small. . . . Two thirds or three fourths of them are probably never immediately but only indirectly concerned in school exercises, and most of the remaining ones, such as rivalry, coöperation, and collecting and hoarding, are serviceable chiefly as general motives.

The importance of instincts as general motives, for drill work, as well as for other learning processes, and the channel through which such motivation flows, is then explained and illustrated by him, in the following paragraphs:[2]

Perhaps the most important rôle of instinct in education lies in motivating and energizing the learning processes. There can be no education except through the activity of the child himself; and no activity can take place which does not ultimately depend upon native tendencies. They are the origin of effort, the springs of action. The skillful teacher plays upon them and appeals to them in countless ways. The ability to do this is an art which is not easily learned from books; it is acquired rather by patient practice and by sympathetic contact with children.

The energizing power of instinct makes itself felt largely through its control of the attention processes. . . .

Apparently back of every act of attention lies somewhere a more or less primitive, innate tendency to action. To focus the attention of a class upon various associations involved in learning the multiplication table, a skillful teacher may on one day appeal to curiosity in the novelty of the combinations; on another day she may appeal to the native pleasure in rhythm by making the table into a rhyme or song. Or the tendency to play will be utilized by making the number combinations into a game. More than likely the game itself will depend upon instinctive rivalry and emulation. The love of social approval is appealed to by giving distinctions, marks, gilt stars, and the like. Future advantage may be used as an inducement for present application. The instinct of pugnacity

[1] Starch, D., *Educational Psychology*, page 12. [2] *Ibid.*, pages 12–14.

may be utilized in wanting to succeed in a hard task. The teacher herself, in standing position with face and body in animated attitudes, may appeal to the fundamental interest in change and action. Lastly may be mentioned the more doubtful negative motives of deprivation from coveted privileges and, biologically perhaps the most fundamental and powerful of all motives, physical pain. It may be worth noting that animal psychologists have found pain in some cases a more potent motive to learning than pleasure.

One of the most effective devices that has been discovered to motivate learning through the instincts of pride and approval is the self-kept learning curve. This is especially adaptable to work in drill subjects, and is most effective in stimulating pupils along inevitable "plateaus" in the learning process, in preventing careless lapses, and in reversing such lapses to former or even greater efficiency when they are allowed to occur occasionally. The values of keeping such records of one's learning have been demonstrated by accurate experimentation, and have been widely approved by experiences in the classroom.

ASSIGNMENT: Find some article in an educational magazine or a section in a book which opposes the appeal to extrinsic interests as means of motivating learning. Try to evaluate the opposing views by thinking out how the question is solved practically in real life; for example, in business.

**Teach the concept and ideal of efficiency.** One of the most potent attitudes or ideals that a pupil should get out of his whole school experience is the ideal of efficiency. This term has been overworked in recent years, and a rather unfortunate motive has been associated with it in the industrial world. We cannot, though, ignore the fact of its importance in all learning processes, and especially in those that involve the attainment of skills by long periods of repetition and practice.

The concept of efficiency involves two elements — getting the best results, and the economizing of time or energy in the process. The desire and determination to do these two things transforms the concept into an attitude or ideal that can have the most varied applications. The possession of a pride in efficiency is perhaps one of the most important elements that will account for what was long thought to be transfer of training or mental discipline. The proof or disproof of the latter theory is still to be produced, but a much more effective program of teaching will result if we do not trust to the unconscious transfer or spread of learning experiences. Much more can be accomplished in training and disciplining the mind if concepts, such as efficiency and the technique of various mental-methods, are analyzed out of a learning situation for the pupils, and if they are taught to give these a general application to all their mental problems. The value of a conscious striving for efficiency, the combination of excellence and economy, is easily demonstrated to any one who conscientiously tries to apply it in some new learning task, especially one that involves drill of any sort. Keeping a learning curve, referred to in the previous section, is but the objective representation of this ideal for one's work and progress in learning.

**Vary the methods and motives in drill work.** The experienced teacher who has read this chapter up to this point, may feel that there has been a studied effort to glorify drill work, and a determined ignoring of the drudgery involved. Unless one has a close daily contact with the labors of the elementary-school teacher, especially in the primary and intermediate grades, it would be easy to make this mistake. The greater part of the day must be spent in just the types of work that have been described, and, at best, there is a great deal of inglorious and wearing monotony about the learning of the fundamentals, both for teacher and pupils.

The difference between the successful and the unsuccessful teacher in this type of work is marked by the extent to which study and ingenuity is expended in collecting and inventing devices for introducing variety. The compelling drill-master, who persists in monotonous, uninteresting regularity of method, gets no more happiness out of the day's work than do the poor victims who are driven through their tasks. The humane, thoughtful teacher, who recognizes the true nature of such work as well as its necessity, devotes herself to all the varieties of motivation and all the play-interest that can be put into the required tasks. She substitutes her insight into childhood for their lack of vision as to the values of what they must learn.

## TEST ON CHAPTERS VIII AND IX

### I. ENUMERATION

(2 points each = 8)

State four distinct purposes that a review lesson may aim to accomplish.

1.

2.

3.

4.

### II. ENUMERATION

(2 points each = 8)

State briefly four suggestions that would be helpful in conducting "fixing" reviews.

1.

2.

3.

4.

### III. ENUMERATION

(2 points each = 6)

Name the three different types of skills.

1.

2.

3.

### IV. ENUMERATION

(2 points each = 8)

Give four of the laws to be observed in habit formation.

1.

2.

3

4.

## V. ENUMERATION

(2 points each = 10)

State five practical teaching suggestions with reference to drill work.

1.

2.

3.

4.

5.

## VI. COMPLETION

(2 points each = 30)

Fill in each of the blanks in the following sentences with a single word.

1. The drill lesson involves ..... repetition with a view to practically a ..... retention of the material studied or an ..... response. In reviews the material is gone over a ..... time for some ..... purpose. The aim of the drill is to insure a practically ..... response; the review does not necessarily involve this.
2. Since the rate of forgetting is ..... at first and more ..... later on, it would be highly advantageous to have relearning come ..... at first and more ..... later on.
3. A teacher should plan a list of items for drill work in making her semester plans. For each item a scheme of ..... should be worked out, and a systematic search should be made for suitable ..... to make such drill work ..... and effective.
4. Such instincts as ..... and ..... are useful in motivating learning.

## VII. RIGHT AND WRONG

(2 points each = 30)

Indicate, by writing "R" or "W" before each of the following statements, whether it is "Right" or "Wrong."

1. Test or examination questions should never be given out in advance.
2. The technique of geography teaching has been highly developed.
3. The inductive-development method can be used in review lessons.
4. The review lesson can be used in the inductive-development method of teaching.
5. Pupils should be taught to make "apperceptive" reviews independently.
6. Review lessons should be used for testing pupils.
7. The value of early reviews is now questioned by experimental psychology.
8. Pupils should never be given surprise tests.
9. Pupils should never be required to "cram" for a test or examination.
10. All habits are not skillfulness.
11. Handwriting should be taught by imitation of model forms.
12. In the early stages of teaching penmanship little emphasis should be put on the resulting product.
13. Drill on oral control in reading can be overdone to the point of being detrimental.
14. The "form" of movements in a skill should be made prominent in the first stages of learning.
15. Bad habits in speech and writing are due to ignorance of the rules involved.

## PARALLEL READINGS

Betts, G. H. *Classroom Method and Management*, chapter VI.
Colvin, S. S. *An Introduction to High School Teaching*, chapters IX and X.
Earhart, Lida B. *Types of Teaching*, chapter XII.
Foster, H. H. *Principles of Teaching in Secondary Education*, chapter VI, pages 83–93.
Parker, S. C. *Methods of Teaching in High Schools*, chapters VI–VIII.
Strayer, G. D. *Brief Course in the Teaching Process*, chapter IV.

# CHAPTER X

## CLASS DISCUSSIONS AND THE SOCIALIZED RECITATION

New purposes for the class period.

1. The topical recitation.
2. The lecture method — Advantages and disadvantages of — Planning summaries.
3. The discussion period — Purpose an important factor — Use of in judgment-forming discussions — Dangers of desultory discussion — The technique of questioning — Can questions be classified — The Monroe-Carter list — The fundamental principle in questioning.
4. The socialized recitation — Meaning of the term — The socialized recitation and the socialized curriculum — Life, and the socialized method — Organizing the socialized recitation — Place and work of the teacher in — Variety of pupil activities in the socialized period — Assignments for a socialized period.
5. Values of the socialized recitation — Gives a social motive — Develops a group consciousness — Training in leadership and in initiative — Wasted ability in our schools — Training in courtesy and consideration — Lends a play-interest to learning.
6. Difficulties and dangers of the socialized recitation — Lack of system and organization — Assertive pupils may dominate — May be wasteful of time — The method may be overworked — Dangers of a fixed procedure.

Test and study-guide for chapter — Parallel readings.

**New purposes for the class period.** There are several modifications of the "recitation-testing" period that involve only slight changes in form and procedure, but which must be distinguished from it because of an important difference in purposes. The conventional class period is a formal exercise, largely for individual testing purposes, with the oral "question-and-answer" method playing a prominent part in it. The modifications of this form in the methods to be discussed in this chapter are so slight, that the teacher who has been in the old wasteful rut of recitation-testing can

perhaps use these types for her first experiments at improving her class-period technique.

The purpose of these modifications of the class period may be summarized by saying their aim is *learning*, rather than *testing*. Using the class period in helping the pupils to get clearer understanding of what they are to study individually, or supplementing the previous individual study of the textbook during the class period, may take on a variety of forms, which should be discussed separately and with more or less detail, according to their variation from the original type form. The four most important modifications of the class period that have learning as their aim are:

1. The Topical Recitation.
2. The Lecture Method.
3. The Discussion Period.
4. The Socialized Recitation.

We shall consider each of these, in order.

### *1. The topical recitation*

The topical recitation has already been discussed at some length in Chapters I and II (see especially pages 19–20 and 56–57). It is merely necessary in this connection to point out that the topical recitation is the easiest modification of the conventional plan, and that, unlike the other three forms to be discussed, it may, and usually does, retain some of the purpose of that plan, namely, testing or marking the individual pupil. But along with this, if the topical recitation deals with any supplementary material not studied by the whole class, it also serves the purpose of teaching the other pupils something in addition to the material learned in their own study. The details of the technique, and the values of this modification, do not need to be repeated here, but may be reviewed in the chapter on Collateral Reading.

### *2. The lecture method*

**Nature and use of.** This is nothing more than a topical recitation by the teacher, with the purpose of clarifying, interpreting, or supplementing the pupils' learning from textbooks or other sources. There is a possibility of greater or less extension of the method. It may, and often does in university instruction, take up the entire class period, and furnishes the core or even the whole content of the subject-matter learned.

For public school work we are not interested in this extreme form of instruction by listening, but a limited amount of it, often of a spontaneous character as the class-period emergencies demand it, is not out of place in elementary or high-school classes. Occasionally whole periods may be taken up in this way by the teacher. More often the teacher will use this method to supplement the material that is available in the textbook, and the combined experiences or learning of the class. Sometimes material learned may be restated in a formal way on some plan of reorganization which the teacher feels will contribute qualities of emphasis or clearness in the learning.

**Advantages and disadvantages of the lecture method.** It must be kept in mind that methods are here being discussed from the point of view of work in the elementary and high school, not in the university. The lecture method is a favorite form in higher education. A few university graduates attempt it on an extensive plan in their first weeks of high-school teaching, but are soon forced to abandon it because of their own limitations, and because at this age, if carried to any length, "lecturing" taxes the good-will of their pupils beyond endurance. Immature pupils lack the necessary self-control for sustained auditory attention, without the opportunity for reaction or anticipation. They have

not, moreover, developed an ability to condense and analyze what they hear into satisfactory notebook résumés, and cannot be held responsible for the materials of such instruction.

From the point of view of public school work then, we are rather considering the occasional "telling" interludes of the teacher. Used in this way, the method has the advantages of clearness, emphasis, and economy for the learner. The teacher can simplify and adapt an important idea of a textbook or a bit of supplementary reading. She can enliven it with all the emphasis that voice and gesture and expression may lend to the presentation of an idea; she can make cold print glow with the warmth of understanding and conviction. There is a further incidental advantage, apart from the subject-matter learning. The pupils in the elementary and high schools should *hear* more good language than they ordinarily do. Language mastery is a matter more largely of ear imitation than we have suspected. Correct and ready speech must come more fully through ear-training than through reading or the learning of rules. These are but auxiliaries, that have been too greatly emphasized in correct speech control.

As compared with the question-and-answer method, telling in a well-organized form is far less wasteful, and should be employed whenever a very clear or an effective impression is essential. The responses of even the best pupil to the teacher's questions are not always to the point; they often introduce irrelevancies; they often involve incompleteness or even introduce entirely erroneous ideas. All such responses may, and often do, involve digressions in which the main issue may be clouded or lost altogether.

**Planning summaries.** One of the most effective pieces of "lecture" work a teacher can do, even in the elementary grades, is to prepare a concise summary for each lesson, as a

final clinching of a period of learning. In most cases this can be prepared in connection with the lesson planning. If the summary must develop from a discussion, the preparation can be going on thoughtfully in the teacher's mind as the work of the period proceeds.

ASSIGNMENT: Make out a lesson plan, based on a particular section of work in a textbook, so as to show topics for topical recitations to be given by pupils, and several topics with appropriate outlines for brief supplementary "lectures" you would give. Also give the outline for a "summarizing lecture" you would give for the whole section.

### *3. The discussion period*

**Purpose an important factor.** From the point of view of the teacher the instruction aim, and from the point of view of the pupils the learning aim, are practically the only things that will distinguish the discussion period from the recitation-testing activity. The testing purpose is entirely absent, and the pupils should understand it so. If the discussion is on the textbook, the books may, and probably will, be open. There will be the same devices of questioning by the teacher, of some explanatory and supplementary "lecturing," possibly of topical recitation. There will also be questioning of the teacher by the pupils, and probably reading aloud by individuals or silently by the group, of selected sentences or paragraphs to be discussed. Such an exercise may be intended to clarify a difficult assignment, preliminary to further individual study by the members of the class, or it may be intended for the study itself — a sort of coöperative, directed study.

This type of discussion period may be used in connection with various other general methods, or it may be thought of as a general method of instruction to be followed from day to day as a distinctive type. The class discussion, directed

by the teacher, is a common phase of the inductive-development method, and all of the activities suggested in the previous paragraph, notably the question-and-answer device, may be used in each of the five formal steps of the induction. In fact, it may be said that the inductive-development lesson is really a discussion lesson, following an inductive outline of progress in its arrangement.

The class discussion method is also a useful form for review lessons, either of the recall and fixing type, or of the reorganizing type. In such review discussions the topical recitation may have a more prominent place. Summaries and outlines by the teacher and pupils should also be stressed. Considerable independence of judgment in the evaluation of topics may be thrown upon the pupils in such discussions.

**Use of judgment-forming discussions.** The discussion method will also be well adapted to exercises which are intended to form opinions or attitudes, rather than the learning of subject-matter, notably in such connections as the study of current events, or the evaluation of conduct in the study of literature and history. In such cases a common experience or a common knowledge of facts is assumed for all members of the class, and this foundation is laid in the early part of the class period, or by assigned preliminary reading.

In such circumstances the teacher can exercise her most important influence over the minds of her pupils, not in the way of forcing her own opinions or evaluations in politics, economics, and literature on the pupils, but in training them to form their own judgments, by reflection and conversation, from the facts. In the matter of thinking out problems, and suspending judgment, all of the technique of thinking that has been discussed in the chapters on supervised study (especially pages 96–105) and on the problem method (pages 164–168) may be employed. While getting at facts

and opinion by the conversational phases, the pupil will have an opportunity for training in courtesy, coöperation, tolerance, and other social attitudes that will be discussed more fully in the next section dealing with the socialized recitation.

**Dangers in desultory discussion.** In connection with the discussion method of instruction there is considerable danger of aimless, desultory conversation, or of wandering from the particular topic in hand. Where the discussion is going on for purposes of assignment, or for clarifying the textbook in a directed-study period, the concrete presence of the subject-matter, with its natural demands for steady progression, prevents any considerable temptation to wandering. In some of the other discussion periods, though, notably those intended for reviews and for the development of opinion and judgments, there is considerable danger of this wasteful side-tracking. In university and high-school classes especially, students are tempted to take advantage of leading discussions into digression far from the main issue. Where the period has no testing aim, the danger of these excursions as a willful distraction is diminished, but even in purely instructional periods, the teacher must guard against the tendency to examine side-issues which soon run into the irrelevant. The variety of needs, interests, and experiences of the pupils makes this a natural difficulty, and the main line of discussion must be resumed the instant the teacher becomes aware of digressions that destroy the plan or progress of the class work on the main issue.

Further, the teacher must judge constantly as to the most effective and economical method of imparting the instruction involved in a lesson planned for the discussion method. There is no virtue in the question-and-answer extraction of vague impressions, or unorganized experiences from a number of pupils, if the particular idea can be presented in a few

sentences by the teacher, or by a more deliberate topical recitation by some specially prepared pupil. On the other hand, the latter devices may be more economical of time in some circumstances but far less effective and educative than the questioning process, if the aim is individual reflection and evaluation. A teacher may lay down her own opinion on a political problem in a few words, when it may be far more important for the pupils to argue and think about it, even though they consume the whole period for the exercise.

ASSIGNMENT: Make out a lesson plan for a discussion lesson that will provide for the varied activities by teacher and pupils that have been suggested in the entire section devoted to the discussion method.

**The technique of questioning.** Perhaps the most constant and most important phase of the discussion period is the use of questions and answers. Since the use of these for oral testing purposes was condemned as wasteful (pages 10–13), the principles involved in the intelligent and effective use of questioning were not discussed in that connection. Their use for teaching instead of testing will considerably modify the questioning technique, and this should, therefore, be taken up in this connection.

Bagley has given us a well-organized summary of principles that should be observed in questioning:[1]

(a) The function of the question . . . is to direct attention to the salient features of the text. That it may not distract the attention from essential to non-essential points, the question should be: (1) definite, that is, limited to a particular fact that the lesson brings out; and (2) unequivocal, that is, admitting but one correct answer.

(b) The question should be so framed that the answer will fulfill, as far as possible, the conditions of efficient recall. This demands that the question should, as a rule, demand an answer in judgment form, for a clear formulation of experience in judgment is a power-

[1] Bagley, W. C., *The Educative Process*, pages 324–25.

ful factor in promoting retention and recall. For this reason, questions are to be avoided that: (1) imply the answer ("leading questions"); (2) permit of answer by "yes" or "no"; or (3) can be answered with single words. (2) and (3) are subject to many qualifications, and are not to be followed dogmatically. It is pedantry . . . to banish all questions that can be answered by *yes* and *no*. We need only to be sure that sufficient reason follows or sufficient experience precedes the answer. In other words, the *yes* or *no* should not be a fortunate or unfortunate guess.

**Can questions be classified?** Various efforts have been made by students of method to classify questions into different types. Such classifications and the effort to define the various types have as yet contributed little to the technique of question-making, largely because the nature of a question is so largely determined by a specific situation, involving such elements as the nature of the subject-matter dealt with, the type of pupil to which the question is put, the relation of the question to the immediately preceding discussion, and the purpose of the teacher in her plans for the period. All of these elements may enter in in various degrees with the range of the question, from a very general problematic sort to the very specific question calling for a single fact.

Of these elements entering into a questioning situation, perhaps the one that will give us the best point of departure for a classification will be the purpose of the teacher. The difference in purpose between a testing question and a thought-stimulating question is evident, yet the very same question might serve either purpose. The question, "Why did Washington choose to cross the Delaware under such unfavorable conditions?" may be a problematic question if used in a study-guide, or a discussion lesson, or it may be a memory or testing question if given in a recitation, or review, or examination, if the pupil has previously studied a discussion of the incident in his textbook. Again, if this incident were used in the discussion of a more general pro-

blem, such as, "Why was Washington a great general?" the question might be classed as developmental. Under certain circumstances the question might be condemned as a "catch" or as "misleading," as, for example, in connection with a textbook that brought out the fact that the conditions were really favorable, when considered from a military point of view. It would seem as if we might as well try to classify topics used in outlining. Out of this discussion it would seem that we might derive a general principle, that questions should be so selected and so stated that they will serve the particular purpose the teacher has in mind for the class period.

**The Monroe-Carter list.** However, we may examine some of the attempts that have been made at question analysis and classification. Monroe and Carter give the following descriptive list [1] of *thought* questions used in a questionnaire to get at teaching practices.

1. SELECTIVE RECALL — basis given.
   Name the presidents of the United States who had been in military life before their election.
   What do New Zealand and Australia sell in Europe that may interfere with our market?
2. EVALUATING RECALL — basis given.
   Which do you consider the three most important American inventions in the nineteenth century, from the standpoint of expansion and growth of transportation?
   Name the three statesmen who have had the greatest influence on economic legislation in the United States.
3. COMPARISON OF TWO THINGS — on a single designated basis.
   Compare Eliot and Thackeray in ability in character delineation.
   Compare the armies of the North and South in the Civil War as to leadership.

[1] Monroe, W. S., and Carter, R. E., *The Use of Different Types of Thought Questions in Secondary Schools and Their Relative Difficulty for Students.* Bulletin no. 14, Bureau of Educational Research, University of Illinois, pages 6–7. (1923.)

4. Comparison of Two Things — in general.
   Compare the early settlers of the Massachusetts Colony with those of the Virginia Colony.
   Contrast the life of Silas Marner in Raveloe with his life in Lantern Yard.
5. Decision — for or against.
   Whom do you admire more, Washington or Lincoln?
   Which in your opinion can you do better, oral or written examinations?
6. Causes or Effects.
   Why has the Senate become a much more powerful body than the House of Representatives?
   What caused Silas Marner to change from what he was in Lantern Yard to what he was in Raveloe?
7. Explanation of the use or exact meaning of some phrase or statement in a passage.
8. Summary of some unit of the text or of some article read.
9. Analysis. (The word itself is seldom involved in the question.)
   What characteristics of Silas Marner make you understand why Raveloe people were suspicious of him?
   Mention several qualities of leadership.
10. Statement of Relationships.
    Why is a knowledge of Botany helpful in studying agriculture?
    Tell the relation of exercise to good health.
11. Illustrations or Examples (your own) of principles in science, construction in language, etc.
12. Classification. (Usually the converse of No. 11.)
    What is the principle involved here? What is the construction? To what class or genus does this individual belong?
13. Application of rules or principles in new situations.
14. Discussion.
    Discuss the Monroe Doctrine.
    Discuss early American Literature.
15. Statement of Aim — author's purpose in his selection or organization of material.
    What was the purpose of introducing this incident?
    Why did he discuss this before that?
16. Criticism — as to the adequacy, correctness, or relevancy of

a printed statement, or a classmate's answer to a question on the lesson.

17. Outline.
18. Reorganization of Facts. (A good type of review question to give training in organization.)

    The student is asked for reports where facts from different organizations are arranged on an entirely new basis.
19. Formulation of New Questions — problems and questions raised.

    What question came to your mind?

    What else must be known in order to understand the matter under consideration?
20. New Methods of Procedure.

    Suggest a plan for proving the truth or falsity of some hypothesis.

    How would you change the plot in order to produce a certain different effect?

Teachers were asked to suggest additional types of questions they used. The results were rather meagre, but those suggested that were only partially included in the above list were:

1. Imagining the results if conditions were different.
2. Questions on appreciation such as, which do you like best?
3. Identify a known character in a scene in the story when his name is not mentioned by the author.
4. What should you judge from these facts?

Other types not so easily classified under the twenty types given, include:

1. Trace the development.
2. Estimate the importance of.
3. Why is this statement true? — a very common question in geometry.

Assignment: Examine this classification of question types carefully. Do you think any are identical, or overlap? — for example, What is the difference in your mind between 9 and 17? Could you, in a written examination, do 14 without 17 or 18 and without 1, 7, or 8? Formulate a series of questions

in your major subject, which might serve as illustrations of the types, one for *each* of the twenty types. Do not word any of them in the form of "directions" to the student; but use the *question* form. If you cannot do this, answer this question; are these all true *question* types, or are they methods of pupil activities in a "recitation," or in a "discussion" period? Classify all the "questions" in this paragraph.

**The fundamental principle in questioning.** The fundamental modifying principle that must be kept in mind in formulating questions in a discussion period is involved in the purpose of such a discussion period. Questions must, therefore, have the purpose of stimulating thought or compelling study, instead of testing knowledge. Since the period is a study period, all questions must be intended for, and be addressed to, the whole class — not to individuals. The need of group attention is more important here than in the oral testing period.

Questions in a discussion period will properly tend to be more specific. General questions will occasionally be in place, but as a preliminary to a common study of several consecutive paragraphs. In case such questions develop commonly in the discussion method, all pupils must be made to understand that they must attack the reading involved, intensively and efficiently. Answers must not be taken until the greater part or all of the class have had a chance to do the necessary reading. To accept an answer from one of the faster pupils, as soon as he finishes, will destroy the value of the study for the majority of the class.

For this reason, general questions and long silent reading periods should be infrequent. Time for a hurried skimming of the whole section to be covered during the period may be taken at the beginning of the period, the reading being centered around some general organizing problem, the answer to which may be kept in reserve for the final summary, near

the close of the period. If such a problem can be set for a lesson it will serve to give a fundamental unity to the whole discussion; the initial skimming will also help pupils find particular passages more readily as the discussion proceeds in a more detailed way. Some lesson units will permit of the class period's being divided into a series of such sections.

### *4. The socialized recitation*

**Meaning of the term.** The socialized recitation should perhaps rather be called the socialized discussion. In general we may say that this method, recently developed and one of the favorites among progressive teachers, is quite like the discussion period that has just been explained, with the exception that the conduct of the discussion has largely been transferred from the teacher to the group itself, and that, consequently, it has certain additional social purposes or results that must be taken into consideration. We shall have to retain the term, socialized recitation, however, because it has been in use for a sufficient time, and with a general understanding as to the procedure involved, so that a modification now will not be warranted.

In general, the aim of the socialized recitation, as in the teacher-directed discussion, is not testing, but learning. As a device for testing it would be even more inefficient and wasteful than a similar exercise conducted by the teacher, but as a learning period the socialized recitation differs from the teacher-directed discussion period in that certain additional social values are involved, as the term itself implies. It is a discussion that is socialized because its aim is socializing. Pupils are to acquire certain social skills and attitudes which cannot be developed under the more formal discussion led by the teacher. Still more, there is an implication and a possibility that these socializing values are of such importance that the method may be advisable to use, more

or less frequently, even though it may not be as effective for subject-matter learning as the discussions controlled by the mature expert in instruction.

**The socialized recitation and the socialized curriculum.** Before proceeding with a detailed discussion of the socialized recitation, its method of organization, purposes and values, and its dangers, we must clear away a common misunderstanding and confusion that has arisen in connection with it. This is the confusion in the minds of some teachers that the socialized method is necessarily related to, or is even identical with the socialized curriculum. As far as any relation is involved it merely lies in the fact of an identity in aims. Both intend to improve the pupil's fitness to meet social needs, but the preparation given by the content of the course of study should be thought of as quite independent in general of the method of instruction used. Different teachers in the same system may have the same course of study. Whether this is archaic or whether it has been wisely adjusted to modern social needs, is, as a rule, no necessary factor in their methods. One may select the socialized recitation throughout the semester, another supervised study, and the third may pursue the primitive rut of recitation-testing. The confusion of these two distinct phases of education, which have a socializing ideal as their basis, has been increased by the adoption of elements from both in the more recent movement to reorganize all school work, subject-matter as well as method, by the new unit of "projects."

The concept of the socialized curriculum as a separate problem may be expanded a bit more fully to show its distinction from the question of methods. Bobbitt, in his epoch-making book on *The Curriculum*, dealing especially with its social needs and socializing values, points out this distinction. In general his discussion shows that, while the technique of curriculum making along scientific lines has de-

veloped but little up to the present time, schools are experimenting in order to determine what the socialized curriculum should be. As yet the controlling purpose of education is not sufficiently particularized; however, a few outstanding points seem evident.

**Life, and the social method.** First, the fact that life consists in the performance of specific activities leads to the conclusion that education must prepare for specific activities. Just what they are must be determined by searching out in real life the attitudes, habits, appreciations, and forms of knowledge men need. This must be done by the expert curriculum maker who makes a thorough study of every phase of the social life of the community. He must go into the homes and determine the need; he must become thoroughly familiar with all kinds of industrial life in which the community is interested; he should know the churches, the clubs, and all other social organizations. The environment should, as far as possible, be such that, as in the Gary system, school is like real life with its needs to be met and problems to be solved, not in symbol but in reality. The curriculum must be a series of experiences by means of which the youth develops the ability to do things well, and in which there is a clearly defined objective. Of course this objective continually changes with new experiences. The objective which in the lower grades must be immediate, becomes more and more remote with the development of the pupil. The drawing up of appropriate studies as a means of affording opportunity for these experiences is the work of the curriculum maker, who must be an analyst of human nature and of human affairs.

We may now note the relation of method to this problem of content. Though a socialized curriculum or some of the other elements of the socialized school may not exist, a teacher can make use of the outstanding principles of mod-

ern social educational ideals and introduce in her methods the activities that are social in their nature. The social method implies opportunity for initiative, spontaneity, individuality, reasoning, and responsibility on the part of pupils, as well as placing the emphasis on the group rather than on the individual pupil. Groups may undertake the solution of definite problems and by research, by investigation, and by the free interchange of ideas, may arrive at conclusions which may be announced in a more or less formal way before the class.

The socialized recitation, when conducted with a conscious recognition of its possibilities, affords one of the best opportunities for showing that there are other, and perhaps more important elements in a child's education than getting facts from books and being tested on them in order that he may be marked and graded. The socialized recitation is a recognition of the need of a child's being trained in attitudes, especially in attitudes affecting his social relationships, as well as his being informed on a socially useful content.[1]

**Organizing the socialized recitation.** The teacher who is contemplating an experiment with the socialized method will do well to make the transition from the conventional recitation lesson to the socialized type by way of the discussion method, as outlined in the previous general section of this chapter. It will probably be helpful to the ultimate success of the plan to take the pupils into confidence as to the ultimate intention of turning the class over to them. Also have them understand that the testing purpose is abandoned in the discussion and socialized lessons, except when specific

[1] None of the newer methods has received so clear and compact an explanation as the socialized method has in a little volume of less than one hundred pages, by Charles L. Robbins, entitled: *The Socialized Recitation.* Considerable use has been made of this monograph in the following sections.

preparations are involved, and that then general impressions of excellent work or failure to contribute are bound to be made. After a few periods with the discussion method, it may be suggested that voluntary contributions, and phases of pupil challenge and questioning of other pupils, or pupil answers to pupil questions, may be introduced. When these phases of the socialized method have been introduced, the final suggestion for pupil organization, leadership, and responsibility may be suggested.

Some simple organization — the use of a pupil chairman, or a program committee — may be tried out first, with the teacher acting as guide and referee in crises. After several periods of this, a critical discussion of the method may be taken up with the class, and remedies for undesirable procedure may be called for from the pupils or suggested by the teacher. Different degrees of complexity in organization may be attempted at different levels. Elementary and junior high-school pupils will probably be unable to manipulate the machinery of a more complicated form than has already been outlined. High-school students may attempt more complex parliamentary or institutionalized forms of organization. Whatever ultimate form is developed for the general conduct of the socialized recitation, the teacher should not lose sight of the fact that the ultimate purpose is twofold — (a) the learning of subject-matter, and (b) the opportunity for all to have a variety of experiences that will have a socializing value.[1]

**Place and work of the teacher in socialized discussions.** To attain the best results, either from the viewpoint of learning or from that of socializing values, the teacher must avoid

[1] An excellent tabular comparison is given in Robbins, *The Socialized Recitation* (page 42), of the distinctive features of the organization, the pupils' activities, and the teacher's activities, for three different types of socialized work — the informal group, the institutionalized group, and the self-directing group.

two possible extremes of attitude. She must not dominate; neither should she be a mere interested or amused spectator. If she presides or constantly interrupts, the class exercise is hardly different from the directed discussion method, and there will be but little opportunity for some of the more important socializing activities. If she is a mere spectator, except in very advanced classes, the work of the class may get nowhere. Enthusiasts may advocate the value of the class extricating itself from tangles, but the work of the day may not be sacrificed to the immature confusion that may arise. The dangers of such situations will be discussed more fully later.

The teacher's work will involve careful planning, not only with reference to the organization of the class, but also as a leader or supervisior of the assignments that are involved. There must be a well-thought-out distribution of tasks, to give all pupils a chance at the various types of experience involved. Supervision or preliminary instruction of a leader or committee may be sufficient, and some effort must be made to keep such leadership on the part of the teacher from being too evident. A sense of responsibility in planning the work is one of the possible valuable social experiences for the pupils.

During the socialized recitation the teacher must coöperate with the class, as one of their number, as far as possible, both in keeping the machinery moving and in making contributions, or taking part in the discussions on subject-matter. The latter must only be offered when no proper contribution seems to come from the pupils. It is evident that this will involve thorough preparation in the subject-matter on the teacher's part. It is a mistake to organize the class and then to assume that they will furnish all necessary content, or to be satisfied with whatever happens to be contributed by the pupils.

Occasionally suggestions or directions that will promote the progress of the discussion, or that will defer the discussion of some topic for further reference, may be required.

**Variety of pupil activities in the socialized period.** The socialized organization of class discussion will involve a variety of activities and experiences for the pupils. If the method is used at all extensively, the planning should involve as wide a distribution of these experiences as possible. These activities involve the social values that lie in the use of the method. At this point the activities will only be enumerated and briefly described; the values of the method will be taken up more fully in a following section.

*a. Planning.* This will usually be in some form of program committee work, in consultation with the teacher, except for advanced pupils. This will involve the assignment of individual tasks if such contributions constitute a part of the plan.

*b. Presiding or conducting.* Some pupil will act as chairman in a more or less formal manner, depending on the complexity of the organization, or will take the part usually taken by the teacher in a discussion period.

*c. Individual contributions*, on assigned topics. These will usually be in the nature of topical recitations on selected items of the general assignment, or on individual supplementary reading.

*d. Voluntary supplementary contributions.* These may be offered by pupils on the basis of individual experience or general reading, that is, not specially assigned reading, on the topics reported on by other members under item *c*, or on phases of the general discussions that develop

*e. Challenging or questioning another pupil's statements.* Questions for further information, for source or reliability of information, or the presentation of rebuttal material.

*f. Correction, criticism, approval, or confirmation.* If the

discussion becomes general and continues for some time, the group will begin to take sides on debatable questions, and an informal argument may draw many into the discussion with activities of the type named.

*g. Summarizing.* This activity must be carefully planned by the teacher. It should be suggested as desirable to leaders or committees to present or provide for such summaries, either as their own function, or as particular assignments; or the pupils should, perhaps preferably, understand that any one may be called on to do this. This summarizing phase is one of the most important from the learning point of view, and is too commonly neglected in the socialized exercises.

**Assignments for a socialized period.** There will usually be two types of assignments for the socialized discussion. The teacher, or the planning committee, must, above all, be sure that the class will have a common core of knowledge about the problem or subject to be discussed. The socialized recitation, like the directed discussion period, may profitably be used for review lessons. In this case the common knowledge may be presupposed, but if the method is to be used on some new material, there will be the necessity for all making some preparation. This should be as complete as for a class exercise of any other type. In order to insure participation by pupils in the way of volunteer contributions, challenge, questioning, correction, criticism, etc., such a common core of information will be absolutely essential. The second type of assignment is of the individual collateral reading for the special contributions to be made.

### *5. Values of the socialized recitation*

**Gives a social motive.** The method gives a social motive to the work of the pupils. There is a feeling in the pupils that preparation and activity are contributions of value to

the members of the group, instead of a formal exercise to be presented to a teacher who already knows what is presented and is imagined to know very much more. There is the natural stimulus of evaluation and criticism, if not expressed, just as surely felt, by the child's peers — not by a superior who has no other function than that of judging and testing. Occasionally a teacher may have an air of sympathetic and genuine interest in the child's thoughts and activities, and may inspire confidences about play and life, but even such personality can hardly function as a "natural-auditor" situation for academic activities.

The preparation of work and participation in the socialized recitation ceases to be a perfunctory, artificial exercise. The value of this natural-audience situation is a powerful motivation in oral and written expression work. The socialized recitation offers large opportunity for oral expression of a slightly different type, the large-group formal conversation, and it offers a proper motivation as well as a proper control for the necessary amenities involved, as will appear presently.

**Develops a group consciousness.** The social recitation develops group consciousness. It puts the pupil's work and attitudes under contribution to group loyalties and coöperation, and arouses a consciousness of common interests and common needs which all can serve. The ideals of loyalty and coöperation are available and probably impressive, for every member of the group, in the very conditions of the socialized recitation. Each is challenged to do his part, or the success of the whole undertaking is affected, the work of the whole group is hampered. It is not a mere question now of the individual's own record in the teacher's class-book. It is a question of the success of a joint undertaking in learning. This stimulus to coöperation will be promoted as much by the spirit of group loyalty, which is natural, as by the feeling

of fear of group criticism and disapproval if the responsibilities are not faithfully met.

While coöperation has an almost instinctive basis, it is equally true that this tendency can be atrophied by lack of exercise, or can be highly developed by practice and experience. Franklin tells an interesting anecdote in his *Autobiography* of how he got a great man's friendship by getting him to do a favor, the lending of a book. Social friendliness can be developed in the same way; one's community becomes his if he serves it in some way, much more certainly than if he can derive some service from the group. Such community service can be developed in the class group, and a feeling of satisfaction in coöperative service can be engendered that will become a permanent attitude.

In this quality, coöperation, and in the one to be discussed next, leadership, we have the great fundamental needs for success in a democracy. The socialized recitation is a democratic substitute for the ordinary autocratic situation in the schoolroom, and whatever values the recitation may have in the way of opportunities for training in these civic virtues should commend it to the teacher for experiment. In progressing with it, and in trying to perfect it from its earlier crude stages, this chance for training in coöperation, in group loyalty, should constantly stand as one of the conscious aims of the teacher.

**Training in leadership and in initiative.** The socialized recitation gives an opportunity for training and development of leadership and initiative. Such opportunities are too uncommon in the schoolroom situation to be neglected. The presence of adult authority is necessary, but it has been so obtrusive as to develop a variety of undesirable attitudes in both the best and the worst types of children. On the one hand the schoolroom situation has bred a regrettable docility, on the other a still more regrettable spirit of evasion and

defiance. The military type of teacher has not altogether disappeared; the necessity of domination and discipline still haunts us, and unavoidably so to a large degree. The schoolroom is an artificial form of group organization; autocratic government is its most natural solution. Recent attempts to supplant it by freedom, especially in certain types of kindergarten and primary classes, have often led to chaos and near anarchy. The socialized recitation seems to offer a happy medium for at least a part of the day's work. This solution lies partly in the feature of the teacher's sharing the responsibility of authority with selected pupil-leaders, and partly in placing the responsibility for self-control and cooperation on the whole group. The former concerns us specially in this section.

Such activities as planning, presiding, leading in discussion, giving summaries, and committee work, or activities as an officer in the more complicated forms of socialized organization, are experiences which must be provided in the period covered by school training. There is perhaps an additional value in the fact that such leadership activities come in connection with the day's work. This should offer a more valuable background for these activities than can be found in the volunteer literary societies, clubs, and similar play and extra-curricular activities.

**Wasted ability in our schools.** While opportunities for such leadership should be as widely and as impartially distributed as any of the class activities, such training in leadership will have special value for two types of pupils — the capable docile child, and the exceptionally bright child. One dealing with advanced students, in high school and university, cannot help but regret the waste of human ability the schools are guilty of in connection with these two valuable social types. One's greatest regret in a teacher-training school, where many young women of exceptional ability in

scholarship give but small promise of success in teaching, is due to this spirit of meek and modest docility, this lack of self-confidence and self-reliance that are such vital qualities for success in instruction. Such docility is largely a product of training, in fact the word itself implies that it is the attitude most desirable for instruction purposes. It is not an attitude desirable for success in life.

The other type of ability that is wasted, exceptional mentality, is wasted in another way, and results in a far less useful product. The neglected near-genius, capable of large service in social leadership, because it is never challenged to do its best and is never practiced in its superior abilities for leadership, is atrophied into the loafer or distorted into the "bluffer" or the trickster who relies on his "smartness" as a substitute for work. The socialized method is one of the best situations to-day offered in the schools for utilizing and properly developing and directing these two valuable types of ability. The principle of impartial assignment may be materially stretched to give to such the opportunities they need and deserve.

ASSIGNMENT: Write a short paper on the question, Is it democratic to give opportunities for special training or exercise to pupils of special ability in the public schools?

**Training in courtesy and consideration.** For all in the group the socialized method gives a natural opportunity for training in courtesy and consideration. One of the fine arts that one reads such idealistic accounts of in fiction, and so rarely meets in real life, is the fine art of conversation, either in small-group or large-group forms. One wonders how much fiction there is about the dinner conversations of fiction, and how much history there is about the *salons* and *levees* of history. Conversation may have become one of the lost arts, like the art of letter-writing with the advent of the

picture postcards. If it has been lost, it should be revived; if it is still really in the stage of development, education owes that development a duty.

A true conversation can never be developed, nor can training in the art be promoted in the artificial situations of teacher and pupil, the mature autocrat and the immature "subject." Conversation and discussion demand a group setting, with a minimum of formality, and an equal freedom to participate, a freedom limited only by courtesy and consideration. Such elements as interested listening, waiting one's turn, contributing when possible, toleration and open-mindedness, are all essentials in the art of small-group conversation or large-group discussion. Such courtesies and attitudes are brought out in all only by experience, and the training may well begin as early as the other forms of expression, writing or speaking to an audience. The socialized recitation, when properly organized, offers splendid opportunities for just such training, and, even if such class exercises were ineffective as a method of learning subject-matter, their occasional use would be fully justified for this purpose alone.

But this purpose *must* be served, even though none of the other values are insured. If the socialized recitation cannot be so conducted as to observe the courtesies necessary for the interchange of ideas, it should not be continued at all. If it becomes a period of indiscriminate babbling, of confused contradiction, of resentful and resented criticism, of aimless altercation, the evil effects will outweigh any planning, preparation, or learning that might incidentally be involved for a few.

**Lends a play-interest to learning.** As a final value it may be pointed out that the socialized recitation lends a play-interest to the learning period, or rather that it eliminates the formal academic atmosphere of the usual schoolroom

situation. It offers one of the best opportunities for realizing the ideal that the school should be real life or like real life. It gives the democratic organization to the group in the place of the autocratic. It substitutes the method of learning by the interchange of ideas with one's peers for the learning for a task-master. All of this has the charm of novelty and good-natured play for the average group, and is welcomed as a change from the formal situation.

*6. Difficulties and dangers in the socialized recitation*

**Lack of system and organization.** Turning over the class period to the pupils involves some difficulties and dangers that must be thoughtfully guarded against. The first and most common of these is a lack of system and organization, resulting in desultory discussion, in futile rambling, in lapses and halts, and in a lack of thoroughness and progress in learning. Such a situation is likely to develop if the class is plunged into the new experiment without complete planning and a careful explanation of the method in advance. A gradual approach to it through the teacher-conducted discussion period has also been advised, as well as considerable participation by the teacher in the earlier stages of such work. Such difficulties, when they arise, should be pointed out and discussed with the class. Pupils should be made to understand that the responsibility of overcoming these difficulties must rest on them, if the experiment is to be a success.

If, with a particular group, there seems to be no inclination to solve this difficulty, and especially if there seems to be a tendency to take advantage of the situation and a spirit of making light of it, as will sometimes be found, the method would better be abandoned. The socialized recitation is, at this point, open to the same objection that is found in experiments in student self-government. Such a pupil organization cannot be substituted for the autocratic

form of government, if the latter is itself weak and ineffective. A poor teacher can no more succeed with the socialized method than a poor principal can succeed with a student government scheme. In fact, the failure will probably be more marked if, under such circumstances, the responsibility is thrown upon the students. It will merely give a larger chance for them to take advantage, if the spirit of respect and coöperation is not present already.

However, such a condition must not be confused with the elements of freedom and enthusiasm that are certain to develop under the most successful forms of the socialized recitation. If the purpose of learning is being met, some noise and confusion may be as permissible as it is natural. The strict militarist should not undertake the socialized exercise; the best developments of eagerness will not conform with her ideas of orderliness and discipline. The spirit and intent of the pupils must determine the difference between a free and successful coöperation in learning and willful disturbance.

**Assertive pupils may dominate.** A second danger lies in the tendency of a few assertive or capable pupils to dominate the period. The inclination in pupil committees and chairmen to give such more than a fair share of the individual assignments, and to give them the floor too often in the discussions, is as natural a mistake for them as for the teacher in regular recitation work. Especially in the discussions will the more enthusiastic and talkative pupils tend to assert themselves. Reciprocally, there is the danger of complete non-participation by the slow or the reticent pupils. To a large degree this must be anticipated in the planning, but this may only provide for equalizing the work on the more formal individual reports. The chairmen and the class generally should be shown this difficulty and should be urged to draw the backward into the discussions, just as a clever,

thoughtful hostess will try to draw all her guests into a conversation. The teacher's participation, and occasional interference, should also be directed to overcoming this difficulty if it becomes too prominent. Unless this difficulty can be progressively overcome, by such plans and by appeals for more general participation and coöperation, the socialized period should not be given a large place in the week's program of methods.

**May be wasteful of time.** It must also be admitted that the socialized recitation is wasteful of time, when viewed merely from the point of view of the efficient learning of subject-matter. If it were to be judged by this learning result alone, there would be little to justify it. But the socializing values must also be considered. Every one is entitled to an opinion as to the relative importance of these two values, but no one can deny the importance of some training in the social values involved.

This difficulty of waste of time has been strikingly pointed out by Robbins. He says:[1]

> It cannot be denied that when the process of socialization is added to that of mastering subject-matter there is need for great economy of time during the class period. Otherwise each day will find the class handicapped because of failure to cover the materials that properly belonged to that day's work. The need of developing a sense of the value of time is further emphasized by the fact that in any kind of group activity, individual waste is multiplied by the number in the group. When the individual is alone and wastes five minutes, the loss is just that. But if in a class of twenty he wastes five minutes of class time, the total is twenty times five.

**The method may be overworked.** This condition leads to another danger that lies in overdoing the socialized method. This method should only be an occasional method. The point of view has been taken throughout the present discussion that the socialized exercise is well adapted to review

[1] Robbins, C. L., *The Socialized Recitation*, pages 88–89.

work, to dealing with supplementary learning, or to such exercises as revolve around the purpose of forming opinions and attitudes. The socialized recitation should not be followed as the regular process of class work from day to day; it should not be relied on for the bulk of content learning; it has little value for drill work. On the other hand, it makes a valuable supplement to the supervised-study method, furnishing just those opportunities for social experiences which are quite lost in the supervised-study program.

**Danger of a fixed procedure.** A final danger to be avoided is a lack of variety in the socialized recitation itself. Pupils are too apt to fall into a stereotyped form of procedure. This has been well described by Robbins as "perfunctory routine." Pupils read reports in a lifeless way, and no background is furnished for enthusiastic discussion and the informal interchange of ideas. It must not be lost sight of that the discussion phase of the socialized recitation is the most important of the activities involved, not only because it gives the largest chance for free and general participation, but also because in the discussion the more important socializing activities find their largest expression. A program committee should not be allowed to plan for a series of topical recitations that will take up the whole period, nor should they be of such a nature as to fail to provoke some sort of spontaneous reaction in the group.

## TEST AND STUDY-GUIDE FOR CHAPTER

### I. ENUMERATION

(2 points each = 4)

State two difficulties connected with the lecture method for immature pupils.

1.

2.

### II. ENUMERATION

(2 points each = 4)

State two advantages or values of the lecture method for immature pupils.

1.

2.

### III. ENUMERATION

(2 points each = 10)

Name five different types of pupil activities that may be made prominent in a socialized recitation.

1.

2.

3.

4.

5.

### IV. ENUMERATION

(3 points each = 15)

State the five chief values that may be attained by the socialized recitation method.

1.

2.

3.

4.

5.

## V. ENUMERATION

(3 points each = 15)

State five difficulties or dangers in connection with the socialized recitation.

1.
2.
3.
4.
5.

## VI. COMPLETION

(2 points each = 30)

Fill in each of the blanks in the following sentences with a single word.

1. As compared with the question-and-answer method, the telling in a well-organized form is far less ....., and should be used whenever a very ..... or ..... impression is essential.
2. The discussion method and the old recitation method are quite the same except in ..... The discussion method is well adapted to exercises intended to form ..... or ....., especially in the study of current events or the evaluation of conduct in such studies as ..... and ..... The chief danger to be avoided in discussion periods is .....
3. As a device for testing, the socialized recitation would be more ..... and ..... than a regular recitation conducted by the teacher. To attain the best results, either from the viewpoint of ..... or from that of ..... values, the teacher must avoid two possible extremes of attitude: she must not ....., neither should she be a mere .....

## VII. RIGHT AND WRONG

(2 points each = 22)

Indicate, by writing "R" or "W" before each of the following statements, whether it is "Right" or "Wrong."

1. The topical recitation method usually retains some of the testing or marking purpose.
2. The lecture method is entirely out of place in the elementary school.
3. In discussion lessons textbooks should never be open.
4. "Yes" or "No" questions should never be used in teaching.
5. The chief aim of a socialized recitation is testing.
6. The socialized recitation does not necessarily involve a socialized curriculum.
7. The socialized curriculum and socialized recitation have the same general purpose in mind.
8. Docility is a desirable attitude for success in real life, and should be encouraged in school.
9. Very bright pupils get opportunities for training they especially need in the socialized recitation.
10. A teacher who has difficulty in maintaining discipline should try the socialized recitation method.
11. All pupils will naturally take an eager part in recitations under the socialized method.

## PARALLEL READINGS

Earhart, Lida B. *Types of Teaching*, chapter XI.
Foster, H. H. *Principles of Teaching in Secondary Education*, chapter XV, especially pages 319–40.
Parker, S. C. *Methods of Teaching in High Schools*, chapter XVIII.
Robbins, C. L. *The Socialized Recitation.*
Strayer, G. D. *Brief Course in the Teaching Process*, chapter XII.
Whitney, Wm. T. *The Socialized Recitation.*

## REFERENCES ON THE TECHNIQUE OF QUESTIONING

Bagley, W. C. *The Educative Process*, pages 323–27.
Colvin, S. S. *Introduction to High School Teaching*, chapter XV, pages 310–33.
DeGarmo, C. *Interest and Education.*
Foster, H. H. *Principles of Teaching in Secondary Education*, chapter V, pages 55–73.
Monroe, W. W., and Carter, R. E. *The Use of Different Types of Thought*

*Questions in Secondary Schools and Their Relative Difficulty for Students*, page 26. Bulletin no. 14, Bureau of Educational Research, University of Illinois, Urbana, Illinois. (1923.)

Parker, S. C. *Methods of Teaching in High Schools*, chapter XX, pages 465–74.

Stevens, Romiett. *The Question as a Measure of Efficiency in Instruction*, Teachers College Contributions to Education, no. 48. (1912.)

# CHAPTER XI

## NEW METHODS IN TESTING

Purpose of tests and examinations — Types of examinations — Examinations cannot be abolished — Taking the teacher's judgment — The daily markings — Use of standardized tests.

1. Educational objections to the old form of testing — Examination-question types — Merely samplings — Not economical of time — Discussion tests not fair and impartial — Degrees of failure not revealed.
2. The improved testing devices — Enumeration tests — Completion tests — Good points of — Disadvantages of — Yes and No tests — Advantages of this type of test — Objection to — Association tests — Reasoning tests — Examples of these tests that have been employed in schools.
3. Objections to these testing devices — Deprive students of free expression — Easy to be dishonest with — Time and cost of preparation — Too great emphasis on memory — Too tense a nerve strain.
4. Summary of advantages — General advantages — Diagnostic value — Make grading of subject-matter possible — Make experimentation possible — Useful as study-guides.

Test and study-guide for chapter — parallel readings.

**Purpose of tests and examinations.** Final examinations and periodical tests, either oral or written, must be thought of as serving two distinct purposes. First, as both words imply, they are a device for evaluating a pupil's work or his progress; this is the purpose they are most commonly made to serve. A second use, their serving as a method of instruction, is also occasionally found, and should probably be emphasized much more than it is. The reason for not employing them more for teaching purposes is probably to be found in the fact that, as usually conducted, tests and examinations are in disfavor with both pupils and teachers as laborious, time-consuming, and, in many other ways, inefficient and unsatisfactory.

As a method of evaluating the pupil's efforts — that is,

for grading, marking, and promoting purposes — tests and examinations serve the incidental purpose of motivating much of our school work at present. As such, they are an extrinsic form of motivation. Interest lies not in the subject-matter of the course itself, but in the comparative marks or in the promotion involved. There is, therefore, an appeal to instincts of rivalry or of social approval, and, in some cases, where there are home sequels to school careers, an appeal to the fear of punishment. Such motivation is perfectly proper in cases where it is necessary, and it is usually necessary to make such appeals to extrinsic interest, because pupils cannot readily recognize the values of much they must learn. Intrinsic interest is, of course, always preferable, but is not always secured readily enough to make mass education go at the rate it must.

ASSIGNMENT: Study carefully Question II, in the Test at the end of this chapter. Show that it might be ambiguous — that two quite different answers should be accepted by one who marks the papers.

**Types of examinations.** Because this motivation forces pupils to work, and often to work hard and feverishly for special school emergencies, the method of testing has been popularly condemned. "Cramming" for examinations, and the strain of the examination period itself, especially when extended over several hours, has been denounced in popular magazines as a barbaric cruelty and a menace to health, as well as an improper method of education. Most of such denunciation is merely a matter of misplaced sentimentality; it has no worthy experimental basis, and studies in fatigue rather tend to show the dangers have been greatly exaggerated. The nervous strain of such strenuous work periods may be a severe one on a few pupils in delicate health, who should probably not be in the schoolroom at all. To argue the case against tests and examinations from such

occasional victims is wholly unwarranted, although we may take the hint that, if examinations can be shown to be necessary or even worth while as a school method, improvements might be undertaken which would remove such possible objections.

It is largely the purpose of this chapter to show that such changes can easily be made, and that such modifications will also contribute largely to making tests and examinations far more thorough and efficient, far less laborious, and much more impartial, objective, and economical of time spent in taking or marking them. The solution will lie largely in adapting a number of devices that have been evolved by the makers of standardized tests to the regular work of the school. Any one who has seen a school group working for a half or three quarters of an hour with a standardized intelligence or educational test, must have been impressed with the thoroughness and efficiency that could be introduced into school work if similar methods were more largely employed.

**Examinations cannot be abolished.** The use of tests and examinations cannot be discontinued in the public schools. Their necessity lies in the demand that the schools shall evaluate the abilities and achievements of the pupils. The public demands this evaluation. Standings, marks, grades, estimates and letters of recommendation are demanded by the world from administrators and teachers. The further a child advances in school the more importance we find attached to such estimates of ability, work, and attitudes. Parents, employers, and each advancing step of the educational system itself, demand accurate grading. The present system of promotional organization makes such evaluation essential.

There are a number of administrative problems in the school besides mere promotion that require as accurate an

evaluation as can be obtained. When a pupil leaves the grammar school and enters junior or senior high school, a program of educational and vocational guidance begins to be necessary. This involves an accurate estimate of past performances, as well as an accounting of interests, attitudes, and abilities. Then, again, the success of a teacher must often be evaluated by a principal or superintendent, and one of the few available bases of judgment is the work of the pupils. We may have a difference of opinion as to how such evaluations of the work of pupils should be made, but we cannot deny the necessity of having such evaluations.

**Taking the teacher's judgment.** Some suggest that such evaluations should be made on the teacher's general impressions of the pupils' abilities and of their work. Such impressions as a teacher may have may be of value in proportion to her experience with children, but there are certain disturbing factors that cannot be ignored as sources of serious error in making such judgments. Classes are usually so large and the period of contact, in departmentalized schools usually only a semester, is so short that a satisfactory estimate cannot be made. The extremes will stand out in a group of thirty-five to fifty children; the best and the poorest will be known; but the middle fifty per cent of average pupils will not be as accurately evaluated as they should be.

Then, again, teachers are naturally too much impressed by certain externals, such as general appearance, dress, physiognomy, pleasant or disagreeable social qualities, and the like. This has been repeatedly shown in comparisons of teachers' estimates of intelligence with standardized test results. Moreover, the disciplinary point of view has necessarily been too prominent; deportmental attitudes of pupils have made teachers quite short-sighted about achievements as well as abilities. Recent experiences in special rooms

with superior children have shown how unfairly some of the disciplinary "problems" have been evaluated. Small children are underrated; and often too much is expected of large children in a class. If children of superior mental ability are kept in "lock step" too long, their tendencies to loaf or to engage in undesirable activities in school tend to give teachers a prejudice against them which extends even to serious underestimation of their real abilities.

**The daily markings.** An improved form of this teacher judgment-evaluation suggests the importance of daily work and daily grades as a basis for estimating pupils. In so far as the keeping of such a record is feasible, it should, beyond question, be given a high place in evaluating pupils, but the feasibility of keeping the record is a considerable objection. The method is open to all the objections that have been raised (see Chapter I) against the "recitation-testing" method of teaching. Such daily, oral testing was shown to be highly inefficient and wasteful. The advantage of the glib talker and the "bluffing" pupil were also pointed out, and now the advantage for such a type adds to the objections to daily marking as a basis of ultimate evaluations.

We may admit the teacher's personal impressions and daily grades as a part of the basis of evaluation, but we cannot accept them as the whole basis. There are values in the frequent written quiz and final examinations that must be conserved, notably the perspective and organization necessary for mastering and accounting for larger units of work. In such aims the test and examination may well be placed alongside reviews as an effective method of summarizing learning. And they may be used as a most effective way of motivating real work in the review itself.

**Use of standardized tests.** A third substitute has recently been suggested for the old type of examination, the use of standardized tests — both intelligence and educational tests.

These have certain advantages over the old type of examination and their use is spreading rapidly, but there are also certain disadvantages which make too great a reliance on them unwise. Ability, as shown by an intelligence test, should be a prominent factor in promotion and in the evaluations the school is called upon to make for other purposes. Ability as shown by such testing, though, is not a complete evaluation, and, as schools are organized at present, the farther advanced a pupil is the more exceptional ability is likely to be overlaid by attitudes that must considerably modify the evaluation. The tendencies to loaf and rely on smartness are often too painfully evident by the time the upper grades are reached. When we work out correlations between intelligence and performance, it is this group which considerably reduces the coefficient of correlation. If we work out achievement quotients, this type usually has an insufficient numerator of performance to keep the quotient at or above 100.

Using the standardized educational tests as a substitute for school tests and examinations has its values for estimating the work of a class, or of a teacher, in comparison with national standards. The sampling in most of the school subjects, though, is too small a part of the subject-matter covered to use them as a substitute for the regular and continuous evaluation that has to be made. This may be illustrated in arithmetic, one of the best worked fields of standardized testing. With the standardized material it is possible to get an effective evaluation only of the ability to do the fundamental processes with abstract numbers, a little of the work in fractions, and a very limited test of the ability to work problems involving reasoning. In contrast to this field we may point to the very limited beginnings in some of the content subjects; for example, United States history. Other phases of history work, holding a large place in the

high-school curriculum, have just been touched. All the history tests have little more than the intent and appearance of a very general "final" examination. Naturally all local significance must be ignored in the standardized tests, and the instructional emergencies of each teacher and each group are not at all met by such tests.

ASSIGNMENT: Illustrate the statements made in the preceding paragraphs by making a specific examination of several standardized tests, in some particular school subject. Show how inadequate these standardized tests would be for the testing a teacher would probably want to do in that subject.

Yet these standardized tests, while limited in their scope as related to regular school work, have one decided advantage over the old type of tests and examinations in their *form*. This *form* makes them fair, impartial, objective, and economical, thus meeting directly some of the most serious educational objections that have been raised against examinations in the past.

*1. Educational objections to the old form of testing*

**Examination-question types.** Reference has already been made to the popular objection made to tests and examinations that they involved a severe nervous strain on the pupil, both in the preparation for them and in the actual writing. The educational objections that can be raised against the old type of examination are more serious. Perhaps the type should be more clearly described. The written "discussion" of topics, or extended answers to general questions, have until very recently constituted the examination method. Usually questions or topics were given that called for some organization of thought on the part of the writer. Both organization and discussion might range from quite accurate recall of learned material, or might involve the free reorganization of such material, or the original organization and

reaction to a new problem related to previous study experiences. The first of these is the most common type. Frequently topics or questions are so general that only a chance, random phase is discussed, no two papers being at all alike in material presented. Sometimes examinations were more detailed and exact, and occasionally unimportant details were included as "catch" questions.

A few illustrations may be given of this type of examination, using questions which have been used not only for school purposes, but for a variety of evaluating activities in everyday life — in examining teachers for certification; in selecting candidates for the civil service; and in any field where an estimate of an applicant's knowledge was essential for his selection.

Following are a few sample questions for examinations in English history set for college entrance by some of the leading colleges:

1. How has English history been affected by English geographical position and physical features?
2. The career of Marlborough.
3. What rank would you give the elder Pitt (Earl of Chatham) among the statesmen of England? Justify your opinion by a discussion of his public career.
4. Discuss the ministry of Walpole.
5. Oliver Cromwell as a statesman.

In Greek history the following are typical examples of college-entrance examinations:

1. Write an account of the career of Philip of Macedon.
2. Describe the fortifications and principal buildings of Athens at the time of Pericles. The addition of a sketch-map would make the answer more definite.
3. Give an account of the conflict between Aristides and Themistocles.
4. Describe the government, institutions, and mode of life in Sparta.

5. Give some account of the Hellenic migrations; of the degree of civilization in prehistoric Greece.

**Such examinations merely samplings.** This is apparent from even a casual examination of the type of questions asked. They attempt to mitigate this necessity by making the samples so broad and general as to admit of some attack by almost any degree of ability or acquaintance with the subject-matter. They give an advantage to the ready writer to which he is possibly entitled, if the examination is intended to be one in composition ability or a test of speed in handwriting. A premium is placed on quantity, regardless of quality of thought. The most experienced teacher will admit this as a problem in reading "discussion" papers. Many likewise will admit the inevitable effect of such incidentals as general neatness and quality of handwriting in grading such papers.

**Such tests not economical of time.** An unwarranted proportion of class time is taken up if the testing is to be frequent and extensive enough to get a satisfactory estimate of the pupils' attainments in any subject. The wastage, though, is probably still more serious when considered from the teacher's point of view. If discussion tests are given often enough, and are of sufficient length to give pupils a reasonable chance to show what they have learned, the teacher is burdened with the drudgery of reading interminable compositions in connection with almost every course. The hours spent on such monotonous tasks might well be devoted to better uses, if the same results in the way of testing can be secured by more economical means. This can now be done. The devices for getting exact responses, so that a large number of papers can be graded in a very short time, have been brought to a high state of perfection in the standardized tests. Further, this economy in marking can readily be adapted to all manner of tests in any subject, as

will be shown in detail in the description of these devices presently.

The time usually spent by the teacher in scoring papers may be much more profitably and agreeably spent in planning and preparing the test, so that it may be efficient, economical, thorough, and objective. Too often the discussion test is made up on the spur of the moment, with little regard to the relative values and the important aims of the course. Some teachers even pride themselves on this spontaneous random "sampling" as a good method to insure impartiality. They do not want to know their own examination and test questions in advance. They do not want to "give away" the important points by too conscious a stress in their teaching. They have a contempt for a teacher who will give pupils a set of test questions in advance. There is, though, far more good pedagogy in the latter practice, if it is intended as a frank list of the important things a pupil should know in the course.

**Discussion tests not fair and impartial.** This is because they are not objective enough to admit of accurate and consistent scoring. This is the most serious charge that can be brought against the "discussion" type of examination. There are several elements involved in their subjective characteristics.

A test is said to be objective when practically the same scores or results are secured if the same test is given to the same group by different teachers, and if the scoring is also done by them. How widely teachers vary in their estimation or scoring of the same paper has been shown by a number of experimental studies. One of the earliest of these has become a classic in showing how prominent the personal equation is in grading the same paper. Starch and Elliott[1] sent out several examination papers, two in English, one in

[1] Starch, D., *Educational Psychology*, pages 433–34.

geometry, and one in American history, to teachers of these subjects. Of 142 English teachers who marked one English paper, the marks ran all the way from 64 to 98, and on the second paper from 50 to 98. The range of 114 mathematics teachers who marked the geometry paper was from 28 to 92, and the grades on the history paper by 70 teachers ranged from 43 to 90.

Objectivity is sometimes attained in tests and examinations in school work. A spelling test is almost absolutely objective, if only spelling is marked, and if credit is given only for correct spelling. Any two teachers would have to agree exactly in scoring the same paper. Similarly, an arithmetic test is very objective, if only answers are marked correct or incorrect. If the process is considered, or if credit is given if most of the work is correct, the marking then becomes more or less subjective.

Such evidence of subjectivity in marking examination papers need not be accepted by any teacher who is at all sceptical. She may try the experiment on herself with a group of "discussion" examination papers, grading them several weeks apart, indicating the grades given each time on a separate sheet of paper, and then comparing results. Factors in the test itself will thus be eliminated. If the papers be identified only by a series of figures which would make the writers unknown to the teacher, and if they be typewritten to eliminate the influence of neatness and legibility, the results would probably be convincing enough. The conditions in the scorer that cause this fluctuation are many and various — health, fatigue, mental states, the place of a paper near the beginning or end of a bundle — all contribute to the subjective phase. If different persons, affected differently by all these elements, grade the tests, the personal equation appears still more prominently.

Again, in a discussion test, a teacher will have very sub-

jective evaluations as to the importance of particular facts or elements in the exercise, or very different standards of what is acceptable. This was shown strikingly in the Starch-Elliott experiment.

ASSIGNMENT: Let a committee of three or five score a set of your class papers of the discussion type, as outlined in the above paragraphs, and compare results. Have the same committee score the papers again after a few weeks, and compare results again with the previous grades.

**Degrees of failure not revealed.** Another weakness usually found in the traditional discussion examinations is the failure of teachers to recognize adequately the different degrees of failure in their pupils. Usually the percentage basis of evaluation is followed, with seventy or seventy-five per cent as the lowest passing mark. When papers are graded under this system a failure is commonly marked just below, but not too discouragingly below, the passing mark. The relative rating of pupils with their more successful classmates is abandoned. The twenty and thirty per cent pupils are lumped with the fifties and sixties.

Then, as affecting the same problem, some tests are easy and some are hard, and when the scores are interpreted into semester marks this fact is often lost sight of.

A number of principles affecting testing and grading have been worked out, as a result of experiences in standardizing tests, and these should be noted here:

a. Any test should be so hard that there will be very few, if any, perfect scores.
b. Any test should have elements in it so easy that every pupil in the group can make some score. There should be no zero scores.
c. A good test will have enough elements, sufficiently varying in difficulty, to get a fair distribution of the whole class.

*2. The improved testing devices*

In this section will be given a description of a variety of devices that have been evolved in the standardized test movement, which, in general, are advised as substitutes for the old conventional discussions, or loose general questions. The various devices are first described separately, and their respective advantages and disadvantages are explained. Some incidental illustrations have already been given in the tests at the end of each chapter, but the descriptive section is followed by a set of illustrative tests that have actually been used extensively in the public schools in Los Angeles, by various teachers, in experimental coöperation with the writer. These tests were based on specific textbooks, and the references are given in order to make it possible for the reader to compare the tests with the subject-matter covered by them.

**Enumeration tests.** In these tests pupils are asked to "name" or "state" a very definite series of facts or topics. Questions of this type should usually call for broad outline or organization facts, or should compel such analysis of a large body of material. Pupils understanding that questions are likely to be asked involving the relationship of various parts of an extended series of lessons, showing their grasp of the perspective, will begin to prepare for such questions in tests and examinations, and one of the most helpful forms of study has then been motivated. This sort of analysis is usually expected from advanced pupils, in high-school and university tests and examinations, and sometimes it is called for as a preliminary in extended discussions. If it is not specifically required, it is not only not given, but is seldom apparent in the discussion itself.

In asking pupils to "enumerate" a series of facts it is usually advisable to give some reasonable leeway. If five

important phases of a movement in history have been discussed, it will seem fairer to ask for three or four. Especially if the enumeration calls for more subordinate elements or details, allowing such a margin will seem to avoid an unreasonable demand for memorization.

**Completion tests.** One of the most effective of these testing devices is the completion test. This is also sometimes called the "mutilated sentence," or "mutilated page" test. The Starch American History Test was entirely composed of this type of exercise. Perhaps the best-known standardized test of this kind is the Trabue Language Completion Scale. As commonly used in the standardized tests, and as used in the present series, the work consists of reproducing the substance or the exact wording of important sentences or paragraphs, with blank spaces for a number of the most important or key words of the thought. The tests are all so made as to require the filling in of only a single word for each blank. As far as possible, such words are selected for omission as would require the pupil to give special attention to these words in studying the passage involved, if the tests themselves are used for study-guides.

**Good points of the completion test.** The advantages and disadvantages of this type of test may be briefly enumerated. We will enumerate the advantages first.

*a. Very easy to make.* The teacher will find the method of the completion test a very easy one to duplicate and modify. If such tests are used as study-guides, as is advised, the teacher may deem that more intensive study of certain paragraphs is desirable. To make a completion test that will compel the concentration of the pupils' attention on important words or facts, such as dates and names, will be easy and effective. The completion test model is also one that lends itself readily to the use of teachers of any content or information subject, notably history, geography, reading for

comprehension, general science, or any of the textbook work in particular sciences.

*b. Searches for mastery of thought.* Another advantage of this test is that it permits the pupil to master the thought or substance of an important passage without requiring verbal memorizing. In many cases teachers, in marking the papers, will be surprised at the ingenuity of the pupil either in furnishing acceptable synonyms or substitutes for the exact language of the textbook, or, when he does not know the proper sense of the passage, in trying to make something intelligible out of it. The verbal memorizing of the text is obviated by reproducing so much of the proper context of the key words that there are all sorts of helpful associations and a proper framework to fit the missing idea into.

*c. Rigid tests of real preparation.* Another value of the completion tests is that they are rigid tests of real preparation. In several years of experience, in testing university students with weekly or bi-weekly tests built up with the various devices used in the present series, it has been found that this apparently simple mutilation of sentences is one of the most rigid that can be put to test their preparation.

*d. Easy to give.* The completion test takes very little time to give. This is especially true if the tests can be prepared in mimeographed form. If they are written on the board, the blanks may be numbered and the pupils directed to write a list of words to correspond with the numbers.

*e. Good vocabulary training.* In answering the completion tests the pupil gets a really valuable experience in vocabulary work. The teasing context forces him to call up every word at his command that will express the idea involved in the mutilated sentence. This value can be intensified if the teacher who uses the tests as study-guides will call the attention of the pupils to the possibility and desirability of getting the idea so clearly in mind that they will have several

synonyms at their disposal, wherever they can think of such a substitute. It should be especially helpful if students were instructed to be sure to look up definitions of such key words as they do not thoroughly understand.

**Disadvantages of the completion test.** There are also a few disadvantages in connection with the completion tests that should be noted.

*a. Not very objective.* The test is not as fully objective as might be desired, and is, therefore, not easy to score impartially. The teacher will often feel forced to fall back on her subjective judgment as to whether certain offered synonyms are acceptable or not. Some degree of arbitrariness must sometimes enter in. Fine, border-line shades between the acceptable will sometimes have to be drawn. The only caution that must be observed here is that the marking must be perfectly consistent as between the different papers. A synonym must not be accepted as right in one paper, and be marked wrong in another. There are two ways of meeting this difficulty, which may confront the teacher in about ten per cent of the blanks. One way is to make out an arbitrary key at the beginning, and refuse to accept any alternative, no matter how plausible it may be. This will insure absolute impartiality as between different papers. Perhaps a better way is to keep an expanding key, adding for each blank the accepted synonyms as they are marked right. This will make the marking fairer without danger of partiality, and also less arbitrary.

*b. Requires care in construction.* One must also be careful in making out a completion test to have only a few blanks in each sentence. It is possible to make the tests too difficult by leaving too bare a context. If one were to omit all words but articles, prepositions, and other unimportant elements, the sentence would give no intelligible clue for thought. For example, if we were to use the first sentence of this para-

graph, it would evidently be ridiculous to offer the student the following sentence to complete: "One must also be ..... in making out a ..... ..... to have only a few ..... in each ....." There is not enough context here to relate the sentence to education, or any other general field of thought. The omission of the word "*completion*" and the word "*blanks*" or "*sentence*" would be sufficient.

ASSIGNMENT: Criticize some of the completion tests you have had in this textbook, by applying the principles that have been given in this section.

ASSIGNMENT: Prepare several completion tests on chapters in some public-school textbook.

**"YES" and "NO" tests.** The "Yes" and "No" tests as here described are a modification of the so-called "Right and Wrong," or "True and False," tests, commonly used in both the standardized group intelligence tests and various educational tests. Usually the test consists of a series of statements, true and false, or right and wrong, mixed in an irregular succession with about an equal number of true and false for any particular series. The pupil being tested is then required to write opposite each statement whether it is right or wrong, either by writing the word or the initial letters, or by underscoring "true" or "false," which are both printed opposite each of the statements.

In the present series the modification has been introduced because a number of teachers who have been experimenting with the tests of this type believe that it is an undesirable practice, from a psychological point of view, to put wrong or misleading statements before a child. This objection is therefore here avoided, without doing away with other desirable elements involved in this type of test. With older pupils, possibly in the high school, the original "true" or "false" form may be permissible. In that form it has proved

a very desirable and effective test with university students in education classes.

It is possible to take advantage of much of the controversial matter in educational textbooks as material for this type of test. One of the most effective tests is offered on topics that involve discussions of popular fallacies, or undesirable common practices in school work which are discussed in such texts. The statement of the fallacy is certain to trip up those who have not carefully prepared on the required assignments.

**Advantages of this type of test.** These may be enumerated as:

*a. Absolute objectivity.* One of the most striking advantages of the "YES" and "NO" test. In selecting statements for such a test the teacher must be careful to avoid debatable statements; if such are left out there is no possibility for difference of opinion in marking the tests.

*b. Easily given.* A second advantage is the ease with which such a test may be given, and the very short time it takes to write such a test. In some subjects a very free use can be made of this device.

*c. Economical.* The test is also economical, in that it may be used for group work in oral form. The statements or questions may be read, usually twice in succession, to a class, and the papers will then merely consist of a slip with numbers corresponding to the questions, each with its "Yes" or "No," or "R" or "W" answer. In this form the test constitutes one of the important elements in the Chapman Oral Intelligence Test.

*d. Easily marked.* Such papers are also easily and quickly marked and scored. Where the teacher has any helpers this marking can be done by others, if a proper key is furnished them.

*e. Require little verbal memory.* Some, who believe that

less emphasis should be put on memory work in content subjects, will find an argument for these tests in the fact that very little verbal memory is involved.

**Objections to this type of test.** One objection or difficulty in the use of the "Yes" and "No" tests must be noted. There is a possibility that the element of guessing may enter in. It might even be possible for a pupil to get a perfect score, without any preparation, by a lucky series of guesses. This objection, though, has been effectively met by the method in which these tests are usually scored. It is customary to score by subtracting the total value of the wrong answers from the total value of the right answers given. This is done on the theory that where there are only two alternative answers possible the "guesser" has a "50–50" chance, and that on this basis it is fair to assume that for every wrong *guess* there was also a right *guess*. The wrong guess is therefore doubly penalized. The justice of this method of marking is sustained by all educational statisticians, and the principle has been incorporated in the marking of a number of the most prominent tests on the market.

If the test is given orally, it must also be noted as a disadvantage that the pupil is not given a chance to look over his paper, after the test is completed.

**Association tests.** This type of test may be used where there is a natural mental connection between any two facts. The test consists in giving one of the members, and expecting the other to be given. The type of connected-member or association may often be specified. The method is especially adapted to content subjects with a rich factual element, as in history or geography. In history the "dates-events," "men-movements," and "cause-effect" are familiar pairs. Either may be given in the test, and its proper associate called for. In geography we would find such natural pairs

as "country-capital," "region-product," "resource-industry," and the like.

There are a number of possible modifications of the Association Tests that have been used extensively in the group intelligence tests, and in various devices used for objective testing in psychological laboratory experimentation.

One of the common forms is known as the "opposites" test, which requires the giving of antonyms. Such elements could easily be used for certain types of content material, and would be especially useful in some of the drill work in vocabulary studies in English or reading, or in the form work in language.

Another phase of the Association Test is the so-called Genus-Species Test. The cue-word may be either the generic or specific term, and the related word is to be supplied. Tests of this sort would probably be convenient variations in some of the science work.

It will be apparent that both these variations may combine a considerable element of reasoning, along with the memory-element involved.

ASSIGNMENT: Explain why there is little opportunity for the use of the "association" device in this textbook.

ASSIGNMENT: Make a short association test covering any of the material you have studied in this book. Let the various papers of students be compiled for a general association test for the class.

**Reasoning tests.** The most difficult task that has been met by the makers of standardized tests is the making of devices that would give a large place to reasoning or judgment activities. The intention is to present material in an economical way that will involve some form of thinking, without the need of any recall of memorized learning. Such tests of the higher mental powers would be especially valuable in the rating of general intelligence. A few such

devices have been developed, but the field is still largely unexplored. In some of the group intelligence tests the scheme has been used of what might be called a common-sense selection of the right reason, from a list of several alternatives. In the Terman group test, for example, we have a test including items such as the following:

*Why do we buy clocks? Because*
1. We like to hear them strike.
2. They have hands.
3. They tell us the time.

*Spokes of a wheel are often made of hickory, because*
1. Hickory is tough.
2. It cuts easily.
3. It takes paint nicely.

In attempting to work out reasoning tests of this sort, it will probably be helpful to try to work out problems along some of the more common categories of thinking, such as cause-effect, effect-cause, classification, general-particular, fact-principle.

**Illustrations of Testing Devices.** Following are shown a number of tests, based on Thwaites and Kendall's *A History of the United States* (1924 revised edition). Tests for general review sections are shown, as well as tests for a single chapter. In each test a combination of testing devices was employed as the material permitted it. The words Completion, Enumeration, etc., over each section of the test are given here for identification of the various devices.

Each of the tests was worked out on a basis of a total of fifty or one hundred points for the test. Each question or section and each item was then weighted with an arbitrary value by an estimate of its relative importance in the lesson. If the tests were standardized these values would probably have to be changed some to conform to the relative difficulty of the items, as shown by pupil performances.

The same method of identification and weighting was given for illustrative purposes in the tests given at the end of each chapter in this textbook.

## I. A REVIEW TEST

(On Thwaites and Kendall, *A History of the United States*,[1] chapters I–XII, pages 1–139)

[1] All references to the Thwaites and Kendall, *A History of the United States*, are to the 1924 Revised and Enlarged Edition.

### I. SEQUENCE, JUDGMENT

(2 points each = 20)

(a) Number the events in Column A below in the order in which they occurred, 1, 2, 3, etc.
(b) Then number those in Column B in the same way, paying no further attention to Column A.

| A. | B. |
|---|---|
| ( ) La Salle on the Mississippi. | ( ) Founding of Jamestown. |
| ( ) Treaty of Paris. | ( ) Discovery of America. |
| ( ) De Soto on the Mississippi. | ( ) French and Indian War. |
| ( ) Magellan's Trip Round the World. | ( ) Landing of the Mayflower. |
| ( ) Capture of Quebec. | ( ) Founding of New Orleans. |

### II. CLASSIFICATION, REASONING, OR ASSOCIATION

(1 point each = 30)

We have covered three great periods in the early history of America:

A. The Period of Discovery.
B. The Period of Colonization.
C. The Conquest of New France by England.

Before the name of each of the men in the list below put the letter A, B, or C to show what period he belonged to. (It will be best to go through the whole list and mark the discoverers and explorers A, first; then take topic B; then C.)

| | | |
|---|---|---|
| ( ) Wolfe | ( ) Winthrop | ( ) Columbus |
| ( ) Penn | ( ) Montcalm | ( ) John Smith |
| ( ) Louis XIV | ( ) Drake | ( ) La Salle |
| ( ) Oglethorpe | ( ) Marquette | ( ) Washington |

| | | |
|---|---|---|
| ( ) Bienville | ( ) Braddock | ( ) De Soto |
| ( ) Sir Walter Raleigh | ( ) Lord Baltimore | ( ) Pitt |
| ( ) Magellan | ( ) Joliet | ( ) Champlain |
| ( ) Balboa | ( ) Franklin | ( ) Peter Stuyvesant |
| ( ) Cabot | ( ) Pizarro | ( ) Cortes |
| ( ) Roger Williams | ( ) Iberville | ( ) Andros |

## II. A TEST ON A CHAPTER

(Thwaites and Kendall: *A History of the United States*, chapter XII, "The Conquest of New France by England.")

### I. ENUMERATION

(2 points each = 8)

Name four wars fought between France and England for the possession of their claims in America.

1.

2.

3.

4.

### II. ENUMERATION

(2 points each = 12)

Name six important events in the French and Indian War.

1. 4.

2. 5.

3. 6.

### III. ENUMERATION.

(4 points each = 16)

Name four important effects of the French and Indian War.

1.

2.

3.

4.

## IV. RIGHT AND WRONG

(2 points each = 32)

Answer the following questions by writing "*Yes*" or "*No*" in the parentheses ( ) before each.

( ) 1. Did Wolfe think being a successful general was the greatest honor a man could wish for?

( ) 2. Did the French lose all their possessions in America as a result of the French and Indian War?

( ) 3. Did William Pitt have an important part in getting Canada for England?

( ) 4. Did George Washington ever fight for England?

( ) 5. Were the Iroquois Indians friends of the French?

( ) 6. Did the French ever own any part of the territory that is now the United States?

( ) 7. Did the French and the English both have good reasons for claiming the Ohio Valley?

( ) 8. Was Washington always victorious in his battles with the French?

( ) 9. Was Braddock defeated because he would not take advice?

( ) 10. Were the Acadians scattered when they were taken into exile?

( ) 11. Did Washington and the Americans stop fighting the Indians after Braddock's defeat?

( ) 12. Did the French give up New Orleans after their defeat in the French and Indian War?

( ) 13. Did England ever own Florida?

( ) 14. Did France get the Louisiana territory at the close of the French and Indian War?

( ) 15. Did she keep it until it was sold to the United States?

( ) 16. Was Pontiac a friend of the English?

## V. ENUMERATION

(2 points each = 8)

Name the four most important cities in America established by the French.

1. 3.

2. 4.

## VI. ENUMERATION

(2 points each = 4)

State briefly two reasons for the Albany Convention.

1.

2.

## VII. ASSOCIATION

(2 points each = 10)

Connect each of the topics in Column A with the topic in Column B that you think is closely connected with it.

Draw lines connecting the proper circles.

| *Column A* | | | *Column B* |
|---|---|---|---|
| Albany Convention | 0 | 0 | "Evangeline" |
| Capture of Louisburg | 0 | 0 | General Wolfe |
| Benjamin Franklin | 0 | 0 | "Unite or die" |
| Exile of the Acadians | 0 | 0 | "Poor Richard's Almanac" |
| Capture of Quebec | 0 | 0 | King George's War |

## VIII. COMPLETION

(2 points each = 10)

Complete each of the following sentences by writing *one word* in each of the blanks.

1. The English general, ....., and the French general, ....., were both killed in the taking of Quebec.
2. The plan of union adopted by the Albany Convention was drawn up

by..... But the colonists rejected it because it was not sufficiently.....; and the king's approval could not be obtained because he thought the plan merely a "stepping-stone to the ..... of the colonies."

## III. ANOTHER REVIEW TEST

(Thwaites and Kendall: *A History of the United States.* A Review Test on chapters VI to XII, "The Period of Colonization.")

### I. ENUMERATION

(2 points each = 8)

Name two Englishmen and two Americans who were prominent in the conquest of New France for England. Underscore the names of the Americans.

1. 3.

2. 4.

### II. ENUMERATION

(2 points each = 4)

Name two American colleges founded during colonial times.

1. 2

### III. ENUMERATION

(2 points each = 6)

Name three Indians famous in American colonial days.

1. 2. 3.

### IV. ENUMERATION

(2 points each = 6)

State three articles of Penn's "Great Law" for the Pennsylvania colony.

1.

2.

3.

## V. ENUMERATION

(2 points each = 6)

Name three important results from the cultivation of tobacco in Virginia.

1.

2.

3.

## VI. RIGHT AND WRONG

(2 points each = 20)

Answer the following questions by writing "*Yes*" or "*No*" in the parentheses ( ) before each.

( ) 1. Did any of Sir Walter Raleigh's attempts to colonize Virginia succeed?

( ) 2. Did the Catholics of Maryland grant freedom of worship to other Christians?

( ) 3. Did the Puritans give New England its name?

( ) 4. Did the Puritans come to America to secure religious freedom?

( ) 5. Did the Puritans grant religious freedom to all Christians?

( ) 6. Did the Quakers establish religious freedom in Pennsylvania?

( ) 7. Were the Indians on friendly terms with the Quakers?

( ) 8. Was ship-building more important in the New England colonies than in the South?

( ) 9. Did the New Englanders oppose slavery in the colonial days?

( ) 10. Was Governor Andros popular?

## VII. ASSOCIATION

(2 points each = 14)

Connect each of the topics in Column A with the topic in Column B that you think is closely connected with it. Draw lines connecting the proper circles.

| *Column A* | | *Column B* |
|---|---|---|
| First Colony in Virginia | 0 | 0 Lord Baltimore |
| Bacon's Rebellion | 0 | 0 James Oglethorpe |
| Settlement of Georgia | 0 | 0 Captain John Smith |
| Founding of Maryland | 0 | 0 Sir Walter Raleigh |
| Founding of Jamestown | 0 | 0 Sir William Berkeley |
| Settlement of Rhode Island | 0 | 0 Peter Stuyvesant |
| Fall of New Amsterdam | 0 | 0 Roger Williams |

## VIII. COMPLETION

(2 points each = 36)

Complete each of the following sentences by writing *one word* in each of the blanks.

1. It has been said that "the destruction of the ..... ..... marks the opening event in the history of the United States." That is, this great victory, which weakened forever ..... power upon the sea, at least gave to ..... her opportunity for ..... America.

2. A few years after Virginia became a royal colony, there broke out in England a long and fierce ..... war between King Charles I, who wished to restrict the ..... of the English ....., and his ....., who stoutly fought for their rights. The well-to-do classes, called ....., fought for the king; the common people, led by ..... ....., were known as ....., and fought on the side of ..... King Charles I was..... by Parliament; and for eleven years England was governed as a ....., called the ..... The monarchy was restored in .....

*3. Objections to these testing devices*

**They deprive students of free expression.** One of the common objections made to these testing devices by university students is that they are deprived of the opportunity for free, organized, and individual expression on the topics involved. The tests are said to be too particular and cramping in their demands for specific responses. It has been brought out in several connections that two of the most valuable skills pupils can learn are the ability to organize their thoughts by outlining, and to express them in a clear, ready form of composition.

As far as the former of these abilities, the opportunity for practice in outlining, is concerned, the charge against these testing devices is entirely unwarranted. It has been shown in the description of the "enumeration" tests that questions of this type are specially intended to test the student on his ability to grasp and retain, or to formulate such elements of an organization or outline. By this device the pupil is required to give his outline without expanding it. If one has to choose between testing a pupil on his mere grasp of the analysis or organization of a body of material he has studied and his ability to produce a formless, disjointed, incoherent mass of sentences on the same topic, surely the former must be recognized as the more efficient and satisfactory test. And it is more satisfactory, not only from the point of view of thoroughness and completeness in testing the pupil's evaluations of a large body of material, but it is also much more satisfactory from the point of view of the teacher's evaluating the relative merits of the different papers. The "enumeration" device gives a group of test papers that are far more objective and tangible for grading, and much more economical.

As far as the other phase of the expression objection is con-

cerned, the charge must be admitted. It becomes a question that each teacher must settle for herself, — Is the testing period intended to test, or is it intended to give pupils practice in composition, especially of the evasive, incoherent type we so often find? Are the conditions of the testing or examination period, with the limited amount of time that is available, suited to the proper exercise of written expression? If there is a call for composition in connection with the subject in question, should not the students be given an opportunity to do such work under more favorable circumstances than the stress and hurry of the examination period?

**Easy to be dishonest and copy.** Another objection raised is that it is easy for pupils to be dishonest in such tests. It is easy to catch the single word inserted in a specific space on a neighbor's paper in a completion test, or to copy his "yes" and "no" or "R" and "W" list in the Right and Wrong test, or to get one or more of his items in an enumeration test.

If the seating arrangement is such in a room that such copying is made easy, the teacher may resort to one of several devices to frustrate this. If the test covers two pages of mimeographed material, as is often the case, pages one and two may be distributed alternately if a natural break is made at the bottom of page one. These may be completed, and the pages may then be distributed again with a reversed alternation, those who had page one being given page two. Or two nearly identical tests with questions arranged in different order, may be made. In giving a "yes-and-no" or "right-and-wrong" test orally, the students in the class may be numbered consecutively and be instructed to write the proper answers only for the "odd" or "even" statements as they are read. The whole list may then be read twice, with the second reading following a different set of numbers, so that each question will be read "odd" one time and "even"

the next, and vice versa. Each pupil will then answer all of the statements, and the correction will involve the use of two keys, one for the "odd" numbered papers and one for the "even."

**Time and cost of preparation.** A third objection is the time and cost of preparing such tests. Considerable thought and ingenuity have to be expended in the original composition of them — far more than is necessary to select a set of random topics or problems for a discussion paper. Then the tests are all more economical of class time if they can be mimeographed. If such facilities are not furnished in the school there are possible substitutes; the right-and-wrong test may be read to the class; completion and enumeration tests may be put on the board to be copied and answered, or the blanks may be numbered and the answers be written as a list to correspond with the numbers.

The time expended on composing the tests is well invested. Such tests, when once gotten up for any textbook, can be used over and over with successive classes, if the completed papers are retained by the teacher or destroyed. If the test is a thorough and reasonable one, there is hardly even an objection to the pupils seeing the tests. In fact, such tests are here advised as one of the most satisfactory types of study-guiding.

**Too great emphasis placed on memory.** Another objection raised against such tests by university students is the charge that these devices place too great an emphasis on memorization, especially of exact details. The charge is sometimes made in a contemptuous way, with the implication that memorizing lessons was quite beneath the dignity of a university student. High-school students may be expected to enter a similar protest.

To some extent the charge must be admitted as an objection; the best thing to offset it is to work out as generous an

amount of "reasoning" tests as can be devised, although it must be admitted that it is easier to give this advice than to follow it. The reasoning test is the most difficult to work out. On the other hand, we must not allow the complaint to stand at its full value. There is not enough serious intent to learn for permanent retention, and perhaps such tests may have a wholesome effect in curing students of too great a tendency to superficial and temporary learning.

ASSIGNMENT: Work out a reasoning test for one of the chapters you have studied in this book.

**Involve too tense a nerve strain.** A final objection that must be noted is the fact that students are put to some nervous strain, especially if a time limit is set on the tests. If the teacher does not wish to do this, the objection, of course, does not hold. This time-limit is an advisable condition, however. Usually the time should be sufficient for only a few to finish, if there is a desire to rank the students on the results. This will observe the principles advised for all good testing, to insure a satisfactory spread of the group over the total range. Students will become accustomed to the methods and to the idea of a time limitation, and they will come to recognize the superior fairness of having all treated exactly alike in the matter of time. Only a small percentage of gain is to be derived by letting all have as much time as they need to finish, and the whole value of economy is lost. Moreover, the chance for copying is increased, unless papers are turned in as soon as they are finished, and this will contribute an unnecessary confusion.

### *4. Summary of advantages of such tests*

**General advantages.** The advantages of the various testing devices have been considered in connection with each type. The general advantages may be summarized briefly.

*a.* They are all much more *objective* than the discussion examinations, and therefore they can be scored much more impartially, and the scores permit much more exact grading of a class.

*b.* They are much more *effective.* More ground can be covered by a twenty-minute test than by a week of "recitation-testing," or than an hour of written-discussion testing. As compared with the recitation, every pupil is made responsible for every element in the ground covered. As compared with the discussion, the tests are really severe in their accurate searching of a student's work; there is a pointedness to the responses called for that makes it impossible to evade. Mature students, who are perfectly frank, admit this is their most serious objection to them.

*c.* All forms of the tests are more *economical,* not only in the time taken to give them, but especially in the time taken to mark and grade them. They relieve the teacher of one of the most unsatisfactory pieces of drudgery she has to deal with.

There are four further advantages that have not been taken up in connection with any of the specific types that should be discussed more fully at this point.

**Diagnostic value.** Such tests can be made very valuable for accurate diagnosis, because they can be made so specific and because they can test the pupils in such a variety of ways. All that can be said for standardized tests as a means of pupil diagnosis can be claimed for these imitation tests.

The technique of diagnosis based on such tests cannot be developed fully here.[1] Such pupil weaknesses as inability to organize, failure to select and study carefully important

[1] For a discussion of such technique, the reader is referred to McCall's *How to Measure in Education,* chapter III, especially pages 88 to 111. Also see chapter X of Monroe, W. S., *Introduction to the Theory of Educational Measurements,* for a general discussion of the use of tests, and parts 4 and 5 of the chapter for a consideration of their diagnostic and remedial values.

paragraphs and an unwillingness to exert himself to the limit of his ability, are a few of the general results that will stand out as soon as a few of such test scores are combined. One of the most startling revelations as to the presence of two distinct types of attitude in university classes of large size, where personal acquaintance is quite out of the question, was made by the persistent recurrence of a bi-modal curve for every test, with the lower mode near the passing or "credit point" dividing line. Individual follow-up interviews were productive in admissions that justified all the time that had been spent on the making of the tests and the scoring of results.

**Make grading of subject-matter possible.** A further value is found in the fact that the tests make it possible to grade the relative difficulties of subject-matter in terms of pupil performances. In the sample tests given on pages 310 to 316, each part of each test has been arbitrarily evaluated and weighted. The teacher using such tests for several semesters would not only have an accurate basis of true weighting, but would obtain an illuminating insight into difficulties and needs for supplementary emphasis and explanation.

**Make experimentation possible.** Another advantage and use of such objective testing devices is in experimentation. To some extent standardized tests are available for this purpose, and where they are available they are probably preferable. A large number of teaching experiments, especially in the comparison of various methods, have been carried on under the writer's supervision by teachers in the elementary and high schools of Los Angeles and vicinity, in which it was often found necessary to make a distinctive set of objective "end" tests, as well as considerable material of the same sort for practice. In all such work these testing devices were found most valuable; in fact, many of the ex-

periments could not have been undertaken without them.

**Useful as study-guides.** A final use of the tests is for study-guides, in either supervised study or individual instruction schemes. The samples given for the Thwaites and Kendall History of the United States, on pages 310 to 316 were used in modified form to fit another textbook in the opportunity rooms for exceptional children in Los Angeles.

In order to carry out the study-guide scheme in supervised or directed study it is desirable that the teacher should have two copies of the test for each pupil in the class. One set is distributed to the pupils at the beginning of the work in each chapter. This serves as a study-guide, or assignment, for the week's work. It is a frank contract with the pupil that these questions cover the important elements to be specially studied and learned. The second copy, an exact duplicate, is used for the final test on the work of the chapter. This may be given as soon as the work on the chapter is completed, or it may be deferred a week, thus motivating a further review of the previous week's work just before the test is given.

### TEST AND STUDY-GUIDE FOR CHAPTER

#### I. ENUMERATION

(2 points each = 10)

Name five of the more common devices for testing that have been developed in connection with the standardized testing movement.

1.

2.

3.

4.

5.

## II. ENUMERATION

(2 points each = 4)

What two purposes do most tests or examinations have in mind?

1.

2.

## III. ENUMERATION

(2 points each = 6)

Name three unsatisfactory methods of evaluating pupils' work that are commonly used in the schools.

1.

2.

3.

## IV. ENUMERATION

(2 points each = 8)

State four objections, from an educational point of view, to the old discussion type of examination.

1.

2.

3.

4.

## V. ENUMERATION

(2 points each = 6)

State three advantages of the completion type of test.

1.

2.

3.

## VI. ENUMERATION

(4 points each = 16)

Name four general advantages that may be argued for the testing devices described in this chapter.

1.

2.

3.

4.

## VII. COMPLETION

(2 points each = 20)

Fill in each of the blanks in the following sentences with a single word.

1. The completion test is often called a ..... sentence test. In making such a test, one must be careful not to have too many ..... in each sentence.
2. The "Right" and "Wrong" test consists of a series of statements, ..... and....., mixed in..... succession, with about an.....number of each for any particular test. The tests are scored by the formula, .....minus..... This is done to penalize.....
3. The devices described in this chapter are useful for.....as well as for testing.

## VIII. RIGHT AND WRONG

(2 points each = 30)

Indicate, by writing "R" or "W" before each of the following statements, whether it is "Right" or "Wrong."

1. The popular condemnation of examinations is fully justified by experimental studies that have been made.
2. Unless pupils are asked to "discuss" in examinations, they will get no practice in organizing material learned.

3. Synonyms should never be accepted in a completion test.
4. The completion test is not perfectly objective.
5. A "Yes" and "No" test is preferable to a "Right" and "Wrong" test for younger pupils.
6. The True-False tests are absolutely objective and impartial.
7. The "Right" and "Wrong" tests are most economical in giving and scoring of any of the testing devices.
8. "Right" and "Wrong" tests encourage guessing.
9. The association method of testing is well suited to the type of material found in this textbook.
10. The testing devices described in this chapter deprive students of opportunities for organized expression.
11. Examination periods are not suited to giving pupils practice in written composition.
12. It is easy to frustrate dishonesty in dealing with tests using the devices described in this chapter.
13. It is undesirable to set time limits in giving tests of this type.
14. All examinations should be abolished because of the nervous strain put on pupils.
15. Experimental studies have shown that mental fatigue is soon reached in school work.

## PARALLEL READINGS

Colvin, S. S. *An Introduction to High School Teaching*, chapter VIII.
Monroe, Walter S. *Introduction to the Theory of Educational Measurements*, chapters X and XI.
Monroe, Walter S. *Written Examinations and Their Improvement*, Bulletin no. 9, Bureau of Educational Research, University of Illinois.
Strayer, G. D. *Brief Course in the Teaching Process*, chapter IX.

# CHAPTER XII

## PLANNING INSTRUCTION

Phases of the teacher's planning.

1. The organization of subject-matter — Planning the units of material — Working out the daily units — Observing natural divisions — Make allowance for losses — Organization of subject-matter — Reorganization of textbook material — Purposes of such reorganizations — Principles of organization — Dangers to avoid in organizing subject-matter.
2. Planning teaching methods — General form of daily lesson plan — A suggestive model-lesson plan — Use of textbook nucleus for subject-matter — Variety of possible methods of instruction — Gradual improvement in method — Progress lies only in constant experimentation. The true experimental attitude — Avoiding burdensome detail.

Test and study-guide for chapter — Parallel readings.

**Phases of the teacher's planning.** There are three phases of the teacher's work in which careful, systematic forethought will help to meet important problems. These are:

(1) The organization of the subject-matter she is dealing with;
(2) The methods to be used in connection with the subject-matter; and
(3) Certain phases of classroom management that are connected with the conduct of the recitation or class period.

The last of these lies outside the province of this book. The first two are commonly thought of together, and as such are usually referred to as "lesson-planning." As will soon appear in the development of the chapter, though, this customary term is somewhat misleading, and its use has probably been one of the reasons for a neglect of one of the most important phases of planning a teacher should do. For this reason a more inclusive term was taken for the title of this chapter. This neglected phase of instruction plan-

ning has to do with the larger units of work — the task of the semester, or of a month or week — and both organization of subject-matter and the selection of methods are involved in this large-unit phase of planning, as well as in the more specific and detailed "lesson-plan" for the ultimate, daily units of work.

This introductory section suggests that there will be two main divisions to the discussion of instruction planning:

1. Planning the Organization of Subject-Matter, or the analysis, arrangement, and evaluation of *what* is to be taught.
2. Planning Teaching Methods, or the careful determination of *how* the subject-matter is to be presented, or how the teacher and pupils are to proceed in their work.

We shall now proceed to consider each of these, in order.

### *1. The organization of subject-matter*

**Planning the units of material.** The teacher's first planning must deal with the distribution of the large units of work. As a rule teachers who have had several years of experience begin to discontinue making daily-lesson plans. This detailed preparation for the day's work becomes less necessary, especially where material is being re-taught; the teacher gains confidence in her ability to plan most of her work mentally instead of continuing the formal, laborious planning that was necessary in training school days; and the stress of work often makes this careful, systematic preparation impossible.

The teacher, though, never reaches a stage where she can well afford to neglect the large-unit phase of instruction planning. Her work is usually set before her in large semester-units in the course of study. Only a few superintendents or principals provide a course of study in which a teacher is required to cover a specified part of a semester's work in a week or a month. In a system of any size the

need for an elastic program, to be determined by the teacher's judgment, is felt to be more advisable, or absolutely necessary. Under such circumstances the teacher must recognize the responsibility, and prepare early in the semester at least a tentative program that shall properly break up the semester's work into reasonable units for the different weeks.

**Working out the daily units.** If it seems at all feasible, such large-unit programs should at once proceed to a planning of daily units, at least for the first few weeks, and such daily-unit planning must be continued well in advance of the progress made by the class. The daily unit may have been consciously kept in mind in the planning of the weekly units. This can be done roughly by establishing a reasonable "pages-per-day" unit for distributing the semester's work. Such a unit may easily be established by a mere mechanical computation, dividing the semester's total number of pages by the total number of days, but in making such a rough approximation there are several modifying conditions that must be kept in mind.

**Observe natural divisions in subject-matter.** We have already noted that textbooks, the usual core of the semester's work, are already highly organized, with chapter, section, and topical divisions. These natural divisions must be taken into consideration when the daily unit organization for instruction is being planned. Sometimes textbooks are made with such natural lesson divisions that the matter of unit planning is practically unnecessary. More commonly, though, some thought must be given to the relation of these two factors to one another. One day's assignment may have to be stretched a bit beyond the unit, the next may have to fall short of it. The less consideration the textbook maker has given to the teaching unit, the more attention will the teacher have to give to her semester plans.

**Make allowance for losses.** In planning the "pages-per-

day" unit careful foresight must be exercised in making allowances for loss of time due to vacations, reviews, and tests, with a reasonable margin for interruptions and repetitions that cannot readily be foreseen. The total of such allowances may well be averaged at two or three weeks for the semester.

It is in this connection that the purpose and importance fo this rather mechanical planning must be apparent. The teacher who fails to make some plan of this sort is sure to come to the end of the semester with part of the work undone. She will either have to send her pupils on to the next grade poorly prepared, or will have to impose an extra burden on the next teacher. If the lagging behind schedule is discovered a few weeks before the close of the semester, the pupils may be subjected to the burden of an unfair proportion of the term's work. The semester ends in an unnecessary tangle of worry for the teacher. If the lack of foresight cannot be overcome, and if the pupils are passed on without the next teacher's being informed of their shortcomings, the new semester will open with an injustice for both teacher and pupils. Usually the teacher lagging in her program will be loath to reveal her failure. Such professional unfairness cannot be too strongly condemned.

ASSIGNMENT: Make out a semester plan. Select a particular subject for a particular grade. Assume a textbook basis. Get some city or state course of study, and use the semester's total there given for your exercise. Select some unit for which a semester's assignment in a particular textbook is given. Compute and state your "daily unit." Indicate what sections you would expect to cover each week. Show why you modify your "pages-per-day" unit in some instances according to the principles stated in the foregoing discussion. Indicate, in connection with the first two weeks of work, your daily units. Also indicate probable supplementary material you would expect to use for the first two weeks.

**Organization of subject-matter.** In most cases where the textbook is used as the principal source of subject-matter for the semester's work, little need be done in an original way in the organization of subject-matter. More may have to be done in the way of reorganization, which will be discussed in the next section.

In the semester plan the general organization has been provided for, in the principle of having regard for the natural main divisions in breaking up the material into lesson units.

In the daily-lesson plan there is a distinct place, however, for the teacher's own outline of the material to be taught. Such analysis or outlining of the content of the lesson will be carried out in the plan in various degrees of detail, depending partly on the teacher's own mastery of the subject, partly on the complexity of the material, and partly on the stage of advancement of the pupils.

**Reorganization of textbook material.** The thoughtful teacher will usually give the question of reorganization of subject-matter considerable attention, and the outline of such a reorganized lesson will appear in the lesson-plan. It will have an important influence on both assignment and the class-period activities. Various reasons for such reorganization may be indicated.

*a. To meet the values of the material.* The teacher must exercise her judgment in evaluating the material, just as the author of the textbook has done. The first consideration, in this connection, is that of logical arrangement. The teacher has a right to review the material by this criterion, and from her own point of view. She need not agree with the author. She may rearrange to insure a different emphasis. She may eliminate, substitute, supplement, or bring separated sections together for purposes of comparison or contrast.

*b. To meet the purposes of instruction.* The teacher may decide on a pedagogical arrangement that will be more

effective, even if the logical arrangement is thereby disregarded. This may be done for large or small units, for a whole week's work, or for topics within a single lesson. The fact that logical arrangement is not always best suited for teaching purposes is illustrated in a striking way by the newer types of arithmetics and language textbooks, that feature the setting aside of logical arrangement for pedagogical or psychological reasons.[1]

*c. To meet the needs, interests, and capacities of pupils,* either as individuals or as distinctive groups. The most significant variations in the needs of pupils are social, and the variations are due to such factors as time and place, and economic circumstances or prospects. The interests of pupils are not to be localized, nor are they necessarily dominated by any of the other factors in social needs. Interests vary largely according to the child's previous experiences in school, as well as out of school. In so far as interests are a controlling factor in selection of subject-matter the adjustment is largely one to be made by the individual teacher, not by the general curriculum-maker, as has been shown in another connection (see pages 60–61. A third pupil factor is the matter of variation in ability or capacity. Rapid readjustment is going on in the more progressive public school systems, to meet the variations in ability, usually for groups of slow, average, or bright pupils, but at present large adjustments of this sort still remain for the teacher to make.

ASSIGNMENT: Select a chapter in some school textbook, and show how you would plan to reorganize the material to meet the needs, interests, and capacities of a particular group or class of pupils. For example, how would you plan modifications if

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[1] One of the best illustrations may be found in the Thorndike series of arithmetics, with an explanation and defense of such radical rearrangement in Thorndike's *Psychology of Arithmetic* and his *New Methods in Arithmetic.*

you had a very bright class? a very dull class? a class in an aristocratic neighborhood? a tenement district? a farming community? Or select any other definite modifying condition you wish.

*d. To meet the ability, tastes, and interests of the teacher.* Adjustments here must be made thoughtfully and conscientiously. This principle may only be given secondary consideration; the subject-matter, the method of instruction, and, above all, the children's needs may never be sacrificed. An illustration may serve to make this clear. If the choice of several poems is offered in the course of study for memorization, it may be presumed that there is no need for evaluation by the teacher on the ground of subject-matter; and there may be no choice from the point of view of instruction. If the teacher can find no preference on the basis of probable interest in the children of her group, there is no reason why she should not consult her own taste in the matter. Similarly with books for supplementary reading, or with possible alternative topics in any lesson.

In making such decisions there must never be an evasion of instructional responsibility on the grounds of difficulty for the teacher. On this ground we must justify the inclusion of teacher "ability" in the topic at the head of the section. If there is a choice between two reading selections, one a valuable bit of explanation that will lend itself to intense, quiet supervised study, the other a dramatic selection requiring considerable skill in class management because of possible confusion that might be hard for the teacher to reduce, there is no objection to taking that selection which the teacher's abilities will fit her to carry through more successfully and with more profit to the class.

Such alternatives may even dominate the major portion of the teacher's method of instruction. Types of personality are important factors in determining the effectiveness

of various methods. Each teacher, by experience in the classroom, will sooner or later become conscious of special abilities and limitations. One could never successfully manage a class discussion or socialized recitation; another may be conscious of special success with the telling or lecture method. Yet neither of these teachers might do well with supervised study, in which a third type might succeed preeminently, though meeting with only average results in the other types of work. Often the method will determine inclusions and eliminations of subject-matter, just as the material may at times dictate a particular type of method as the most natural one to use.

**Principles of organization.** The matter of organization and reorganization may be analyzed from a different point of view, technical rather than practical, rhetorical rather than pedagogical. Such an analysis will give us three important principles that should be observed in outlining subject-matter.

*a. The principle of unity.* Lesson units should be units, not merely from the point of view of logical subdivision, but also when considered on the side of aim. In making the lesson-plan for the day, the single purpose, from the standpoint of instruction, must be clear and definite. In discussing the statement of aim in connection with the inductive development method (pages 73–74), it was pointed out that one of the recent modifications of the original Herbartian scheme made provision for both a "general aim" and a "specific aim." This was merely intended as a device to prevent scattering, a fault that would be especially fatal in lessons of the inductive type. The danger of such lack of unity in purpose, though, is not absent in connection with other methods, and is sometimes greater in dealing with small units of subject-matter than in dealing with larger units. In the latter case a better perspective and the need for

steady progression compel a more careful attention to organization on the principle of unity.

*b. The principle of coördination.* This principle applies especially to the selection and arrangements of the main topics in the outline of subject-matter. The questions of coherence and sequence both enter in. Usually the "main topics" of the teacher's lesson plan will be the only ones in the outline that will be apparent to the pupil as the lesson proceeds. The need of careful selection, balance, and proportion will therefore be plain.

*c. The principle of subordination.* In outlining technique, while unity and coherence for the work as a whole are controlled by the selection, proportion, and sequence of the main divisions, the unity of each division is controlled by two elements, the proper subordination of the subdivisions to their main division and the coördination of these subdivisions to one another. In any scheme of outlining a more or less arbitrary set of symbols is used to indicate coördination, while the fact of subordination is shown both by a change from one series of symbols to another, and by the equal indentation of each successive subordinate series. This may be illustrated by one of the systems of symbols commonly used for outline analysis:

I.
  1.
  2.
    a.
    b.
      (1)

II.
  1.
  2.
  3.

III.
1.
a.
b.
2.

Topics that would be indicated by the Roman numerals are coördinate to one another, and subordinate only to the general subject. Those indicated by Arabic figures under any one of the Roman numerals are all subordinate to it, and coördinate to one another. The subordination is shown by the use of a different series of symbols and by indentation. Similar is the subordination of topics under I, 2, and under III, 1, shown by letters of the alphabet. The series of symbols available for showing different degrees of subordination is practically unlimited, and the most intricate subordinate relationships may thus be expressed in a formal outline or brief. The selection of various conventional systems is largely an arbitrary matter, though there is a somewhat standard uniformity as to the order in which the different series are to be used, which is that given above.

The symbolism is not so important, however, as the fact of proper coördination and subordination, for the main divisions and for all subdivisions alike. Careful attention to these relationships in the thought is absolutely necessary to secure clearness, completeness, unity, sequence, coherence, and proportion. This method of outlining was originally invented as an aid in composition, then as an aid in the analysis of printed material, and in this connection the same principles are urged for effectiveness in teaching. The observance of these rhetorical principles is as important to secure clearness, completeness, proportion, and all the other qualities named above in instruction in the class period as it is in written expression. That teaching may have such qualities it is necessary to introduce the outline

of subject-matter into the lesson-plan — in some detail for the practice teacher and the novice; in more meagre detail for the experienced teacher.

ASSIGNMENT: Criticize the following fragment of outline on the principles discussed above. This is one of the early forms of the outline of this part of the present chapter. Can you account for the transpositions, eliminations, etc.?

II. Organization of Subject-Matter.
  1. By semester, weeks, topics, or daily lesson.
    a. Work out your daily unit of work.
    b. Observe natural divisions in subject-matter.
    c. Make allowance for losses of time.
  2. Reorganization.
    a. For emphasis.
    b. For elimination, substitution, comparison.
    c. Two senses of "selection" of material.
      (1) Larger units.
      (2) Smaller units.
  3. Organization.
    a. To meet values of material — logical arrangement.
    b. To meet particular needs and capacities of pupils.
      (1) As group.
      (2) As individuals.
    c. To meet ability, tastes, and interests of teacher.

III. Method of Organization.
  1. Principle of unity — especially in daily work.
  2. Principle of purpose.
  3. Principle of coördination.
  4. Principle of subordination.

**Dangers to avoid in organizing subject-matter.** The teacher in planning a lesson and in selecting, arranging, organizing, and reorganizing subject-matter must be careful to avoid certain dangers.

*a.* "*The fetich of completeness.*" It has already been pointed out that in textbook making one of the difficulties a specialist in subject-matter easily falls into is the reverence for "completeness" — the touching on every detail of a logical outline of his subject. This results in introducing

materials to be learned which have no justification on the basis of practical values; it confuses the essentials in a mass of detail; and it compels the study of topics at a time when a pupil is not prepared to deal with them. In many subjects the teacher will have to deal with the textbook material fearlessly. Revision on a scientific basis in the interests of teachableness has made considerable progress in a few subjects. Revision in other subjects, or in cases where the more progressive books are not in use, still lies in the hands of the teacher.

Another factor that indicates the responsibility of the teacher here is the fact that many textbooks give an overabundance of certain types of material, problems, and exercises, with the expectation that the teacher will make her own selection of material from the variety offered.

*b. Easy uniformity, or repetition.* A second mistake a teacher should avoid in the selection and organization of subject-matter is easy uniformity, or repetition. It is desirable to plan constant experiments in dealing with materials, either in connection with successive topics or in going over a semester's work a second time. This is necessary not only for the sake of maintaining pupil-interest by variety, but also for developing mastery of the subject-matter on the part of the teacher. We may recall the sections in the older American histories in the constitutional period when the author fell into an easy uniformity of procedure in dealing with each successive administration. The Civil War was welcomed as a relief from this monotonous uniformity. Similar mechanical monotonies of organization are being discarded in the newer geographies, in dealing with the various countries, and in some of the high-school geometries.

In some courses of study this selection and arrangement of subject-matter has continued in a uniform repetition for

so long as to have become a tradition. In the Latin course in the high school, not only in its entirety, but even within the sections of each year or semester's work, in the Cæsar, Cicero, and Virgil classes, the selection of "books" displays a slavish uniformity and a considerable lack of imagination or invention on the part of teachers. This deadening monotony is much further intensified by a traditional method of teaching. For this reason such a subject has long held a specious reputation for developing docile, conscientious, capable students; when the fact probably is that none but those born that way could survive.

This traditional selection and arrangement of material, as well as this easy uniformity and monotonous repetition in method, spread to the teaching of the English language and literature, and to the modern languages, making them to a regrettable degree futile, until the very recent movements for revision in both subject-matter and methods.

*c. Too great reverence for the printed text.* A third danger in the selection of subject-matter is too great reverence for the printed text. This mental subservience to print has been discussed at some length in the chapters on the textbook, and on collateral reading (See especially pages 9–10 and 48–51.) It is merely mentioned in this connection because it is in the lesson planning that the teacher can do most to combat this tendency in herself, and insure its correction in the minds of pupils. If for no other reason than the shaking of the pupils' unthinking acceptance of the printed page, the teacher should definitely plan to "skip" worthless sections, and to reorganize with a view of bringing in contradictory "print," because of the opportunities to give training to this challenging critical spirit. Perhaps the inexperienced teacher should take this opportunity to give herself some training in the same line.

### *2. Planning teaching methods*

**General form of daily lesson plans.** We must now take up the specific form that will be desirable for the daily lesson-plan. The form is important at this point, because it is necessary to see how teaching procedure is to be related to subject-matter.

Except for the teacher who has a fixed uniformity of method and who dares rely on the inspiration of the moment for devices, illustration, and questioning, an outline of method is as important as an outline of subject-matter.

To bring these two outlines together in the most convenient way, teacher-training schools have, in the last few years, used a double-column scheme for lesson-planning, in which the organization of subject-matter is usually made in the left-hand column, and the parallel analysis or suggestions as to method of procedure and devices are stated in the right-hand column.

One further feature of this double-column outline should be noted. The material is usually divided horizontally in a series of successive "steps." This is largely an influence carried over into present practice from the "formal steps" of the inductive-development method. That method largely introduced the idea of having a lesson-plan, and developed the scheme to a highly formalized stage. It is impossible to get away from the influence of this Herbartian plan altogether, nor is it desirable, because some of the phases of lesson-planning under this method have values for almost any type of lesson. The general attitude of the teacher in making daily lesson-plans, as far as the question of form is concerned, may be summarized by saying the plan should be systematic, but it should also be elastic.

**A suggestive model-lesson-plan.** In offering suggestions for a model plan that shall be applicable to any of the gen-

## AN OUTLINE FOR INDIVIDUAL LESSON-PLANS

(Arrange your material in two columns.)

| *Column A.* Materials | *Column B.* Methods |
|---|---|
| **I. Topic and Aim** | |
| 1. State the topic of subject-matter you expect to deal with. | 1. State your teaching aim; that is, give a brief, exact statement of the educational results you expect to secure, — What knowledge, rule, skill, conduct, or attitude. |
| **II. Analysis and Selection of Method** | |
| 1. Brief outline or analysis of the topic of subject-matter stated above. In making this arrangement of the succession in which the material is to be taken up, a thoughtful decision must be made as to whether a logical or a pedagogical order is to be followed. | 1. A general statement of the method to be used, for example, supervised study of textbook, recitation-testing, collateral reading, inductive development, socialized recitation.<br>2. If special devices, or a change in the methods for any subdivision of the subject-matter are to be used, state these specifically in Column B, opposite the topic in Column A. |

The above part of the lesson-plan is merely introductory; the next topic should give a detailed, anticipative account of just what you are going to do in the class period and what you expect the pupils will do in the way of work or reponse.

| | |
|---|---|
| **III. Class-Period Preparation Step** | |
| 1. If "preparatory" work of any sort is to be necessary to get the pupils ready for the new work, state in this column what topics of subject-matter are to be reviewed. | 1. State in this column whether the review is to be by teacher's summary, questioning of pupils, topical recitation summaries by a few pupils, or whatever the method may be.<br>2. Decide definitely whether this review is to culminate in revealing a need or problem that is to be answered by the advance work. |
| **IV. Presentation, or Work on Advance Lesson** | |
| 1. In this column there should be a further enumeration of subject-matter detail than was given in II, if you consider such detail advisable. | 1. Under the conditions of most of the general methods, it will be necessary to have details of what the teacher is going to do during the class period, such as devices, illustrative materials, pivotal questions, directions for work to be given to pupils. |
| **V. Assignment for Next Work Period** | |
| 1. If the assignment involves mastery of subject-matter, the limits of the assignment appear in this column, as well as any analysis or reorganization of it that the teacher considers advisable to help pupils in their study.<br>2. If outside reading is involved, references should be noted here, if they are to be definitely assigned. | 1. This is necessary only if there is to be a study period by the pupils, between class periods.<br>2. Be sure your "assignment" complies with the best requirements, and that it is suited to the sort of work to be done. An assignment of mere limits of work is hardly satisfactory; pupils should be told how as well as what, and this should appear in lesson-plans in this column. |

Steps I and II have to be worked out for an advance lesson before step V, the assignment, can properly be made. Often there will be considerable identity between step II and step V.

eral methods that have been discussed, we therefore meet with two difficulties. The outline for the successive steps in the plan will be either too general to be suggestive, or too rigid to be adaptable to the various methods. The result is that the model may be recommended only with the injunction that the teacher should use it as a suggestive scheme which may be modified with considerable freedom as her judgment may dictate. It may not always be necessary to work out both columns, nor is it necessary always to include all the steps.

The form for the model plan may now be introduced (see page 341) and this may be followed by a series of further suggestions relative to its use.

**Use of textbook nucleus for subject-matter.** It has been shown (Chapter I) that the textbook is an almost universal core for the subject-matter of instruction in American schools. This must be recognized frankly in lesson-planning, and the teacher should probably begin with a textbook discussion as a nucleus for the subject-matter column of the lesson-plan, even if, in rare cases, the textbook is not actually used. The suggestion is based on the fact that the textbook offers the most compact, complete, and convenient material for the general outline, even though it may have to be modified considerably. Where the textbook is used, it is advisable in most cases to keep fairly close to the pupils' probable experience with the subject-matter in question.

Even a university instructor who does not contemplate the use of a textbook in a course, but contemplates instruction by the lecture method and supplementary reading, usually finds it convenient to use, as a starting-point for his organization of the course, some textbook outline or a collation of the outlines of several such books. This basis may be considerably altered, but it is a convenient and economical nucleus as a point of departure. For convenience in refer-

ence the same thing is even more true in dealing with elementary and high-school students, and this is as true for daily lesson-plans as it is for semester planning.

**Variety of possible methods of instruction.** The whole purpose of this book has been to show teachers, and those preparing for the profession, that there is a variety of possible general methods in teaching. The point of view was taken in the opening chapter that conducting recitations on the textbook material for the purpose of testing the pupils' study was not only a natural method to begin with, but that it was for most necessary if not unavoidable. But it was also shown that this method was very wasteful, and should be modified as soon as possible by the selection of other methods that were shown to be more economical and effective.

It has also been implied in several connections, similarly, that some of these methods are better adapted to certain kinds of subject-matter, some more effective for various purposes, some more suited to different types of teachers, or to the varying abilities or interests of pupils. The decision as to selection of method must be made by the teacher at the time of her lesson-planning, and that decision will largely determine the type of suggestions put into the second column of the lesson-plan. The selection of method will be made on the basis of considerations named in the sentence preceding the last. One value of the formal double-column plan lies in the fact that it offers a direct challenge to make such a selection of method, to make it intelligently, and, when it has once been made, to give considerable thought to the detailed application of the method to the particular subject-matter in hand for the day.

**Gradual improvement in method.** The question of a teacher's improvement in her work will probably hinge largely on her use or neglect of lesson-planning. This does

not imply that a teacher who does not make lesson-plans every day will not be progressive; neither is the reverse true. It is in connection with lesson-planning, whether this be daily, occasional, or spasmodic, that the most natural stimulus will come for professional improvement, both in extending one's mastery over subject-matter and in giving attention to improvement in technique.

An impossible ideal program could easily be mapped out for the teacher who has determined to stop wasting her pupils' time in textbook recitation-testing. Such a program might easily be made so ambitious as to be a counsel of perfection. If in her lesson-planning, in addition to a program of reading for improvement in her grasp of the subjects she is teaching, a beginning teacher should propose to try out one or two new methods each semester, for occasional class periods, or for a few weeks at a time, she would probably be undertaking enough. Almost every one of the general methods discussed in this book, which is intended as only an introductory survey of them all, has an extensive literature devoted to it. To keep up with the books and periodical literature dealing with a single one of the newer methods would be an impossibility for any teacher. To initiate a trial of some new method will involve the reading of considerable selections from such lists. A modest, gradual modification of methods is all that is advised.

**Progress lies only in constant experimentation with methods.** Teachers who have made some advance in technique, away from the primitive recitation of their inexperienced days, may have found a professional haven of content. At some progressive stage a new method was discovered, tried, and found particularly suited to the teacher's tastes and personality. The method perhaps first attracted attention because of such reasons, and its success argues for its permanent and universal use. Such a teacher may be more

successful than another who uses a more wasteful method, but she is no longer a progressive teacher. Progress lies only in constant experimentation with methods. This does not involve that all new "fads" must be tried, nor does it mean that the new must necessarily supplant the old. The fact that a method is new does not necessarily prove its superiority, its adaptability to all subject-matter, or to every type of teacher and every type of pupil.

An experimental knowledge of the values of a variety of methods, though, and an open-minded willingness to test out any new suggestion with a fair trial, mark the truly progressive teacher. Convictions about various methods, especially new ones, are desirable if they are based on careful experimentation with them. Prejudices are never justified, whether they are positive or negative. Knowledge about all methods is a worthy goal for every teacher; contented ignorance of any is a sure sign of arrested professional growth.

**The true experimentation attitude.** While the experimentation with methods must be in the spirit of true experimentation, based on an adequate understanding of the distinctive technique involved in the new method, with prejudices carefully laid aside, with conditions as rigidly controlled as work in the classroom will permit, and with objective tests to measure initial and final abilities of pupils,[1] the teacher should not lose sight of the fact that such experimentation is largely carried on for her own guidance. The personal equation in determining teaching method cannot easily be controlled, nor should it be disregarded. The purpose of such experimentation may be frankly individual, though it may sometimes, if conducted on a high plane of scientific accuracy, give results worth publishing. Because of the importance of the personal element, every progressive teacher

[1] These essential features of experimentation have been developed more fully in other connections; see especially page 107 f. and 207.

will want to know for herself what results she can get with various methods.

The occasion for determining and selecting such methods for experimentation will largely become a conscious process in connection with the planning of instruction, whether this be in the blocking out of large units in the semester program or in connection with the daily lesson-plan.

**Avoid burdensome detail in daily plans.** To prevent the condemnation and neglect of lesson-planning as a hopeless burden, the teacher must proceed, as rapidly as her experience warrants, with an intention of simplification of plans. Drudgery for the sake of formalism will not encourage sensible, thoughtful planning. As a method is mastered by experience, the second column of the lesson-plan will become briefer. As a mastery of subject-matter is extended by several repetitions, and by a considerable cumulation of supplementary material, the first column of the plan will become less specific. The planning is to be thought of as a necessary crutch. As a consciousness of mastery through experience and experimentation increases, the progress in planning will become more of a mental process, and the detailed writing of plans may then be discontinued.

ASSIGNMENT: Criticize the following statements, as given by Grant.[1] No lesson is planned until the teacher:

a. Has a definite aim for teaching the lesson.
b. Knows why the pupils study the lesson.
c. Becomes familiar with the subject-matter.
d. Organizes it psychologically.
e. Selects the essentials and rejects the non-essentials.
f. Has a good method for presenting the lesson.
g. Has at least ten good questions she will ask.
h. Has collected data, materials, references, illustrations, etc
i. Has a good summary that can be given quickly.
j. Has planned the next assignment.

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[1] Grant, *Acquiring Skill in Teaching*, page 136.

ASSIGNMENT: At this point students should be given a number of definite assignments of subject-matter for which to prepare lesson-plans. Perhaps five or six different types of material in different school subjects should be assigned to each student. Emphasis should be laid on the formal use of the model for such exercises. The student should be able to defend, on the basis of lesson-planning principles here given, the inclusion or omission of steps and topics in each plan. If time permits, several of the plans should be critically discussed in class, and individual conferences should be held with such students as show they have not mastered the principles.

## TEST AND STUDY-GUIDE ON CHAPTER

### I. ENUMERATION

(2 points each = 4)

What are the two chief phases of instruction planning?

1.

2.

### II. ENUMERATION

(2 points each = 6)

State three principles of procedure that should be followed in working out semester plans.

1.

2.

3.

### III. ENUMERATION

(2 points each = 8)

State four reasons that often make a reorganization of textbook material necessary.

1.

2.

3.

4.

## IV. ENUMERATION

(2 points each = 6)

State three dangers that must be avoided in the organization of subject-matter for teaching.

1.

2.

3.

## V. ENUMERATION

(2 points each = 10)

State the five steps that should be used in the formal planning of a lesson.

1.

2.

3.

4.

5.

## VI. COMPLETION

(2 points each = 34)

Fill in each of the blanks in the following sentences with a single word.

1. In outlining technique, while unity and coherence for the work as a whole are controlled by the ....., ....., and ..... of the main divisions, the unity of each division is controlled by two elements, the proper ..... of the subdivisions to their main division and the ..... of these subdivisions to one another.

2. Two difficulties are met in using any model form for daily lesson-plans. The model will either be too ..... to be suggestive, or too ..... to be adaptable to the various methods. Such a model may be modified with considerable ..... as the teacher's judgment may dictate.

3. One value of the formal double-column lesson-plan lies in the fact that it challenges the teacher to make a definite selection of ....., and to give considerable thought to the detailed application of the ..... to the .....

4. True experimentation with teaching methods must be based on an adequate understanding of the ..... involved in the new method, with all ..... carefully laid aside, with ..... as rigidly controlled as work in the classroom will permit, and with ..... tests to measure the ..... and ..... abilities of pupils.

## VII. RIGHT AND WRONG

(2 points each = 32)

Indicate, by writing "R" or "W" before each of the following statements, whether it is "Right" or "Wrong."

1. Semester lesson-planning is unnecessary for an experienced teacher.
2. A progressive superintendent will plan a course of study that will show daily or weekly lesson units.
3. A teacher should never rearrange materials from the order given in the textbook.
4. The logical arrangement of subject-matter is not always the best arrangement for teaching purposes.
5. All textbook materials are organized according to logical principles.
6. Types of personality in the teacher are important factors in determining the effectiveness of various methods.
7. A teacher should never omit any of the material given in a textbook.
8. Uniformity is unessential in working out lesson-plans.
9. A textbook outline is a convenient nucleus for lesson-planning even though a textbook is not used by the pupils.
10. A teacher who does not make lesson-plans will not be progressive.
11. Lesson-plan making will give a stimulus to attentive improvement of technique.
12. The results of experimentation with teaching method are principally for personal guidance.
13. The personal equation in determining teaching method by experimentation can easily be controlled.
14. A conscientious teacher will never abandon making daily lesson-plans for all her classes.

15. Every daily lesson-plan should have all the five steps of the model plan.
16. Method planning is as important as the organization of subject-matter for the inexperienced teacher.

## PARALLEL READINGS

Charters, W. W. *Methods of Teaching*, chapter XXV.
Colvin, S. S. *An Introduction to High School Teaching*, chapter XVI.
Earhart, Lida B. *Types of Teaching*, chapter XV. An Appendix (pages 237–63) gives many good examples of plans.
Foster, H. H. *Principles of Teaching in Secondary Education*, chapter XIII.
McMurry, C. A. and F. M. *The Method of the Recitation*, chapter XIV.
Strayer, G. D. *Brief Course in the Teaching Process*, chapter XVI. One of the most complete discussions of lesson-planning, especially from the modified Herbartian point of view, with many helpful examples.

# CHAPTER XIII

## THE TREND TOWARD INDIVIDUAL INSTRUCTION IN THE PUBLIC SCHOOLS

Present-day trends — Individual differences a teaching problem — Readjustments in organization — The discovery of retardation — Administrative devices to reduce retardation — Supervised study as an individualizing movement — The scientific classification of individual differences — Special classes and rooms for extreme types — Individual attention for normal children — Vocational guidance — Individual trends in the project method of instruction — Actual individual-instruction experiments — Much of this trend incidental.

Parallel readings — Review problems on the book.

**Present-day trends.** Most of us have a social philosophy that associates mass education with public education, and individual instruction with private instruction. Such an association is not a necessary one, and there is a danger that it may stand in the way, as a prejudice, against a general movement in American education that is becoming more certain and more widespread every year. Our public school system is fast headed toward individual instruction, and that in spite of increased costs and of the staggering difficulties it involves in school administration, classroom management, and teaching methods.

Most of the movements now prominent in the best schools and school systems that suggest we are headed, far more rapidly than most of us realize, toward individual instruction or something closely approaching it, do not at all have this as their aim; but they are contributing to the trend because of the incidental emphasis on the individual that is involved in them.

It is only within the last few decades that these more or less independent movements in educational practice and in

educational research have given us a most convincing mass of evidence that the work of the classroom teacher will have to be modified radically, in the direction of individual attention, in order to meet the needs of most pupils. School systems are still administered on the principle that equal educational opportunity must necessarily involve mass teaching.

**Individual differences as a teaching problem.** The whole elementary-school population in almost any community is divided into eight or sixteen groups, supposed to be sufficiently homogeneous for the average teacher to give from thirty to fifty children adequate training in the elementary-school requirements. Our system of grading schools, after less than a century of practice, has almost become a fixed tradition. Teachers are expected to do well by almost every child in a group that may contain mentally superior children and morons, retarded children of normal ability, foreigners, children with all manner and degree of physical defects, and with two or three emotional or moral misfits thrown in to keep the teacher in practice on "discipline." All these types are distributed throughout all the rooms in the average school, with about an equal number of normal, healthy children of about average mental ability, and of a docile disposition.

What is the teacher's solution? Usually there is a combination of special attention and special neglect. Some teachers, inspired by the bright pupils, give them a chance to lead and control all class activities, and leave the "stupids" alone except for an occasional question to justify to the teacher and pupil alike the foregone conclusion of a semester failure and repetition of the work. Other teachers, and most commonly this is the case, devote most of the school day to trying to help the slower minds up to the average performance that is acceptable as "passing," while the bright pupils are left to shift for themselves and to develop

gradually but certainly into academic "loafers." Either alternative involves tragedy for some pupils, and a most serious social waste.

The teacher's excuse is usually that she has done her best with the limited time she has, and with the variety of work and the large number of pupils she has to look after. She is often justified in the claim that she is required to do the impossible. But she is also, in most cases, the victim of a tradition in her method of working, which would probably involve a considerable degree of failure, even if she were working under more favorable conditions as far as numbers are concerned.

**Readjustments in organization.** The recent research and experimentation referred to have clearly defined the problem of individual differences in children, which makes necessary an effort at individual treatment for at least one half of the present school population, both on the part of the school administrator and on the part of the teacher. Several of the larger cities of the country have made considerable progress in the discovery and definition of the individual differences in school children, and in making special arrangements for individual treatment based on the results of such analyses.

Where administrative arrangements have regrouped children, it often becomes a problem of selecting special teachers for some of the special groups. Such teachers must have special interests and sympathies, and usually a special technique. Where such arrangements have not been made, the teacher is left with a heterogeneous group to which she must adapt her methods and devices to meet individual needs as best she may. Much of the variety in general method can be employed to meet such classroom emergencies.

The trends toward individual instruction are found partly in the field of methods, and partly in other educational move-

ments. Or, expressing it in another way, we find a number of educational activities that are revealing and constantly refining the differentiation between individual pupils; and, almost as rapidly as these individual differences are being revealed, we find progressive administrators and teachers making experimental provisions for adjusting the work of the schools to these individual differences.

**The discovery of retardation.** The first event of importance that showed all was not as it should be with our mass education in the public school system was the discovery, in 1904, by Superintendent Maxwell of New York City, of the appalling amount of retardation in the schools of that city. When he announced, to a national gathering of superintendents, that 39 per cent of the New York City children were above the normal age for their grades, there was an amused expression of condolence that things should be so bad in New York, and a large measure of rather smug self-congratulation on the part of the other administrators. A few went home and began to investigate their own schools, and before very long many cities were admitting equal or worse conditions.

Several systematic studies were soon made of retardation. The most notable of these, under the direction of Leonard P. Ayres, resulted in a report, in 1909,[1] which showed that in thirty-one leading cities the average proportion of pupils who were a year or more behind the grade in which they should have been was 33.7 per cent, and that 16 per cent of the school children were "repeaters." Among the important causes for retardation found in this extensive study were late entrance, irregular attendance, and illness or physical defects. It is significant to note that "mental inferiority" was not included in Ayres' list of causes. The means for discovering this, perhaps the most important of

[1] Ayres, L. P., *Laggards in Our Schools.*

all the causes, were just being worked out at that time. The work of the French psychologist Binet in testing intelligence was then just being tried out in a few institutions for the feeble-minded in this country.

**Administrative devices to reduce retardation.** Among the remedies that were suggested for overcoming the wasteful results of mass education, the following were listed by Ayres:

1. Better compulsory attendance laws and better enforcement.
2. Better school census methods.
3. Medical inspection.
4. Better courses of study. (To fit the average child, instead of the brightest.)
5. More flexible grading.
6. Better school records which would give real knowledge of the facts.

The result of the exposure proved to be a wholesome one. Administrative machinery was renovated, and, most significant of all, various experiments were undertaken in the more progressive cities, both in the way of improving and adjusting the course of study to individual needs and in making the grading and promotion more flexible. A number of cities were distinguished by having these educational schemes become identified with their names, and so we have come to speak of the Batavia plan, the Cambridge, St. Louis, Santa Barbara, Pueblo, and other city plans. Several convenient descriptions are available, and a detailed outline of these schemes is beyond our purpose in the present discussion.[1] In general these experiments were classified as

[1] The reader who is interested in the details of these plans may refer to either of the following:

Cubberley, E. P., *Public School Administration*, pp. 300–02.

Starch, D., *Educational Psychology*, pp. 41–48.

Still better, probably, is Chapter XIX, on "Classifying and Promoting the Pupils," in Cubberley's *The Principal and his School*.

"flexible promotion schemes" and "differentiated-course plans." [1] The solutions combined adjustments in the administration and instruction in various proportions, and, as the earlier experiments were adopted in other cities, a great variety of combinations and modifications resulted. All served the common purpose, however, of giving more and more consideration to the individual needs of pupils who, for one reason or another, did not fit in readily with the basic graded systems or the methods and materials used in group instruction.

**Supervised study as an individualizing movement.** Supervised study has already been analyzed fully as a teaching method, in Chapter IV. As a motive for the adoption of the method we must recognize it as a development of the movements outlined in the previous section. The adoption of supervised study was generally made, not only because it was recognized to possess a more economical and a more effective instruction method, but also because it offered a still better opportunity for meeting individual differences. Each pupil was given a better chance to work at his own rate over the same field, or was given such an amount of material to study as he was capable of handling in a given period. The result was, as has been pointed out, either an opportunity for individual promotion at a rate conforming to the pupil's abilities, or an enriched curriculum for the more capable ones, if the individual promotion scheme did not seem feasible.

The individual values are more considerable if the administrative arrangements are made for flexible promotion, but even as an independent classroom method the organization is largely intended to obviate the losses due to the group recitation, or to the necessity of repeating the work of a partial success. Every type of pupil — bright, average, or

[1] See Cubberley, *Public School Administration*, pages 300, and 310.

dull — can proceed at his own rate over the essential material, and each can get as much supplementary direction as he needs to do the work. If the method is in regular use there is also the provision for individual testing of results, each pupil giving his account for a unit of work as fast as it is completed.

**The scientific classification of individual differences.** All of these movements, at first largely based on the desire to reduce retardation and repeating, were given a great reinforcement and expansion by the invention of standardized tests. The working out of objective, scientific devices for rating every pupil in a group according to his general intelligence, or his "ability" to do school work, and according to his achievements or attainments in each school subject, made the fact of individual differences so exact, so striking, and so reliable, that all of the schemes could be carried to a much higher degree of effectiveness.

The revelations as to the enormous range of mental abilities in any class were astounding, and their range of performance so remarkable that the trend toward individualization was more than justified. The earliest perfected intelligence test was made public by Binet, in France, in 1907, and within a few years these had been introduced into this country. Within five years this individual test had been greatly improved, and in five more it had been adapted to more economical use in the form of group tests, by means of which the mental abilities of all individuals in any class could be ranked in the few hours taken to give and score the tests. The movement for getting an individual rating for every pupil in every elementary-school subject was going on at the same time. The technique of such testing has now been improved to a stage where even particular needs within school subjects can be diagnosed for all. In fact, the movements for the discovery and diagnosis of individual differ-

ences has gone far beyond our present means to adjust either the administrative machinery or the instructional methods to the individual needs that have been revealed.

Methods of tabulation and analysis of the scores made on such tests are now beginning to appear, which make it possible for a teacher to interpret and follow up the results of the standardized tests according to the individual needs that are revealed. The work with standardized educational tests has gone quite beyond the stage of mere comparison of class averages with national standards. The largest use of the tests now is this analysis of the individual pupil.

**Special classes and rooms for extreme types.** One of the most general adjustments to individual differences that has grown out of the previous movements is the establishment of special rooms and schools for some of the more extreme types. There are rooms for feeble-minded, for stupid children, and for superior or exceptional children. There are rooms for children who have normal or more than normal ability, but who have been retarded for other reasons. There are rooms for those who need special physical care, the tubercular, the crippled, and those otherwise handicapped. In most of these special rooms there is not only "type" treatment, but also a larger degree of individual attention on the educative side. This is due to the fact that such type children are usually collected into a special room from various classes, and therefore the group methods of instruction cannot be employed.

In such rooms, designated variously in different cities as development, adjustment, opportunity, "express," and "booster" rooms, and by other similar terms, we find a special type of teacher, being trained usually by experience, and a great deal of special material in the way of devices. Some of the best of this material is finding its way into the market, and is beginning to be adapted by general-room

teachers for the individuals of the various types, where the school has no provision for special rooms. This is made possible because so much of the ingenuity of the special-room teachers is being expended to make such materials self-directing, and therefore suitable for independent individual use. More and more the teachers are developing into supervisors of individual self-activity and self-instruction.

**Individual attention for normal children.** But the trend toward individual instruction has not been confined to the atypical, the subnormal, the supernormal, and the retarded. These exceptional cases started the movement, but there are other activities in the average school system which are tending to give more and more individual attention within the average, normal group.

Among these provisions must be classed the rapid spread of departmentalization, and especially the spread of the junior high-school movement, which finds one of its largest justifications in bringing departmental work to the elementary-school child. There is an element in this that solves the individual-promotion difficulty. Promotion now comes by subject, instead of by grade. Irregularities in abilities, and individuality in tastes and application, are more easily met.

Allied to the departmental scheme is the extension downward and the lateral expansion of the elective system. Pupils are given the opportunities to make their own individual adjustments, as far as tastes and needs in subject-matter are concerned.

Along with the elective system there is the rapid expansion of courses to meet individual needs. The vocational education movement in public education has this recognition of individual differences in mind, as well as the intent of social, economic service to the community. The training

for a trade is now offered in such variety, in the larger cities, that individual tastes and ambitions can be met.

**Vocational guidance.** Along with this extension of electives in the senior and junior high schools, and the offering of opportunities for vocational training, there has developed the movement for vocational and educational guidance. The opportunities are so varied, and the selection of a trade or profession is requiring such high degrees of specialization, that pupils are being forced to make important individual decisions as to courses and subjects before they have sufficient perspective to make such decisions wisely. The needed guidance cannot be given intelligently by parents, and even the general faculty advisers are no longer considered adequate to give such advice expertly. Vocational and educational counselors, with the machinery for getting and keeping complete individual records, are now relied on in many progressive communities to give this advice. Usually such guidance is given in connection with the public schools, and the larger high schools, junior and senior, are undertaking this service for the community and for the individual.

**Individual trends in the project method of instruction.** Besides all the arrangements, largely of an administrative nature, that have been discussed as contributing to a larger and larger recognition of, and provision for, individual differences, there are also several important movements in the purely instructional field that have tended to place large emphasis on the individual. The supervised study movement, which combines both administrative and instructional features contributing to the individualizing trend, has already been discussed.

Another of the prominent new methods, though it was not primarily introduced for this purpose, has large individual instruction values and possibilities. The project or the

project-problem method was largely developed to bring more real-life materials and activities into the school. It has been found, too, in the working out of laboratory problems, and in the field and shop projects, in agriculture, domestic science, and the manual arts and trade courses, that most satisfactory results can be obtained if each pupil works independently. Under such circumstances it soon transpires that, with the individual rates of working, different pupils will soon be working at different tasks, even though they may have started on a common program. The same condition is a natural one when the problem or project method is carried over into the more academic subjects. Again the teacher becomes an adviser and supervisor of individual learning units.

**Actual individual-instruction experiments.** Finally we must note that some school leaders who were in a position to do so have made extensive out-and-out experiments with individual instruction. A number of private institutions have advertised the success of such schemes, and their successes have been approved and commended by enthusiastic educators [1] for imitation in the public schools.

One of these experiments has been carried on for several years under public school conditions. In the city school system at Winnetka, Illinois, a complete scheme of individual instruction has been carried on for some years. The superintendent of schools has been most enthusiastic in his claims of results, and a number of critical visitors have given the experiment a rich measure of praise.

One of the significant phases of this experiment has been the energetic effort made to get out textbooks and study-guides, and a variety of practice materials of the self-directing type, that could be put into the hands of children so that they would be largely independent in their study.

[1] As in Dewey's *Schools of Tomorrow*, and *New Schools for Old*.

Some of this material has been published for general use in the schools. The demand for it has reached considerable proportions.

**Much of this individual instruction trend is incidental.** In conclusion it must again be stressed that, while some of these movements have the conscious aim of giving individual attention in instruction, most of these movements were started to meet other needs, and the emphasis on the individual has been an incidental by-product. The various promotional schemes were intended to diminish the waste of the lock-step system. Departmentalized teaching was largely intended to furnish pupils with better teachers because they could specialize in their preparation and in their work on a single subject. The elective system was intended to place the opportunities for a practical or vocational training alongside of the traditional classical course. Supervised study was intended primarily to diminish the waste of the recitation-testing method. Intelligence tests were first evolved to locate and isolate feeble-minded children from the general group. Other school tests were first suggested and used as a supervisory device, to see whether teachers were keeping their classes up to national standards. Most of the types of special rooms were started to take the difficult problems off the hands of the regular room teacher, and to reduce the grade group to a more homogeneous average. Vocational education and vocational guidance were largely introduced to promote economic efficiency, and to supply a substitute for former methods of trade training that were falling into disuse because of industrial conditions.

Yet all of these movements have made their peculiar contributions to the development of two general trends in the public school, both of which are already radically modifying mass education. These trends are: (1) the discovery and diagnosis of individual differences in abilities, needs, and

performances; and (2) the adjustment of the work of the classroom to these individual needs and abilities by a rapidly increasing development of individual instruction.

## PARALLEL READINGS

Foster, H. H. *Principles of Teaching in Secondary Education*, chapter xv, especially pages 309–19.
Parker, S. C. *Methods of Teaching in High Schools*. chapter xv.

## REVIEW PROBLEMS

(The following problems are intended for a review of this textbook as a whole, in such a way as to impress the fundamental theories of technique that have been stressed.)

1. Why is the textbook-recitation-testing method so wasteful and inefficient?
2. This common, primitive method of teaching may be modified and improved in two general ways: (*a*) By improving the methods of testing pupils; (*b*) by supplementing textbook teaching by other general methods.
3. How may our methods of testing pupils be improved?
4. Why are the new testing devices more effective?
5. What general methods may be used to supplement work with the textbook? Which of these are to be thought of as purely supplementary? Which are to be thought of as substitutes for the textbook method?
6. For what particular type of subject-matter is the inductive-development method specially suitable?
7. Why is it ridiculous to plan an appreciation lesson on the plan of the "formal steps" of the inductive lesson?
8. Make a list of five problems that could best be taught by the project method. Then make a list of five problems that could not be taught by the project method, but could be taught by the problem method.
9. Could any of the problems in this list be taught by the project method?
10. What is the difference between the object lesson and the project method?
11. Have any of the fundamental principles of this book been taught by the object lesson method?
12. To what extent should the selection of general methods enter into a teacher's semester planning?
13. Why should a teacher experiment with a variety of methods when she is sure she already has a successful method?
14. To what extent may the nature of the subject-matter determine the

selection of method? Review this problem in connection with each of the general methods; find sections in the various chapters which refer to this relationship; make a list of subject-matter topics specially suited to each of the general methods. Start your comparison with considering the inductive, appreciation, and drill methods.

15. Why are the collateral reading and the lecture and discussion methods the easiest to make a beginning in breaking away from the textbook-recitation-testing method?
16. What is the psychological basis for a fearless emphasis on drill work in connection with much of the work in the elementary grades?
17. Show that habit learning is more important than content learning in connection with oral and written expression.
18. Would it be possible to determine by true experimentation that correction of written compositions by the teacher does or does not result in correctness of expression on the part of pupils? How?
19. Make a list of experiments suggested in the text and add several other experiments in method you think it would be interesting to make.
20. In what other way, besides the problem method here used, could a review be worked out for this course?

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